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ELECTRICAL AIDS TO VETERINARY PRACTICE *

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At the request of your hon. secretary I have come down to-day to attempt to interest you in a number of instruments and appliances with which most of you may be unfamiliar. My particular desire was to emphasise the great value to the practitioner of X-rays, and to show how easily the present-day apparatus may be worked and what good results can be obtained. I read an exhaustive paper on this subject before the Central Veterinary Society and as this has been published in the *Veterinary Record,* I do not propose to go over it again. I will therefore content myself with showing you a portable apparatus, and a number of skiagraphs taken with it. I have purposely not unpacked the apparatus because I want to show you that it really *is* portable and that it can be taken quite easily to your clients' houses when necessary. It can be assembled inside of ten minutes, ready for use. In view of my programme I shall hardly have time to describe technical details, but will be very pleased to answer the queries of any Fellow who may see some problem which apparently might deter him from acquiring and working such a set.

I feel that it is becoming an urgent necessity for veterinary practitioners to possess a greater knowledge of electricity and its sphere of usefulness in therapeutics and diagnosis. If we are to advance with the times, we obviously cannot ignore what is being done in the medical profession on these lines, and I think some of us, at least, should make a special study of X-rays, actino-therapy and medical electricity in order that no-one may lay the charge that the veterinary profession is totally ignorant of them, and for the reason that if this were done not only would those specialists benefit themselves, but they would be of service to their colleagues.

In 1760 John Wesley addressed the Faculty as follows:—"I would beg one thing from all the Gentlemen of the Faculty. It is that none of them would condemn they know not what; that they would hear the case before they pass sentence; that they would not peremptorily pronounce against electricity, while they know little or nothing about it. Rather let every candid man take a little pains to understand the question before he determines it."

* Paper presented to the Mid-West and South Wales Division, N.V.M.A., at Bath, April 15th, 1932.

John Wesley's appeal might well be repeated to-day, for a fair proportion of medical and veterinary men are still inclined to "condemn they know not what" and to ignore the modern advances in electrical methods, rather than take a little pains to understand them.

X-rays are of greater value as a means of diagnosis among small animals than among horses and cattle; yet, at the same time, it is possible to obtain quite good skiagraphs of horses' limbs up to the elbow and stifle joints respectively, even with my small portable plant. I will, later, show you some equine skiagraphs.

If we can agree that this is so, surely then it follows that an X-ray apparatus would be valuable even for horses, because it is probable that the greatest number of uses for it would occur in connection with the lower limbs.

[Major Kirk then demonstrated the apparatus and exhibited about 60 skiagraphs.]

I now would like to draw your attention to the value in the surgery of the galvanic and faradic batteries such as are here depicted. In order that one may describe this apparatus and its uses, I suppose it is rather necessary, first of all, to attempt to describe an "electric current." The materials in the world around us have been analysed into elements, and it has been shown that each element is made up of units called atoms. An atom may be defined as the smallest particle of matter capable of entering into chemical combination. Atoms, however, *do not* represent the final stage of physical sub-division. They are now split up into electro-positive and electro-negative corpuscles, *i.e.*, electrons. In a metallic substance there are always a number of atoms which have parted with electrons. These electrons are free and are capable of moving amongst the relatively fixed atoms, and it is through their motion that electricity is transferred from one part of a substance to another. By rubbing two dissimilar substances against each other it is possible to transfer electrons from one substance to the other. When glass is rubbed with silk, or flannel with resin, electrons are detached from the glass (or flannel) and added to the silk (or resin). A current is induced; and the manner in which electrical crackling noises can be made by merely stroking the hair of a cat or of a human head, is well known to all of you.

Galvanism.—The galvanic or direct current is one that does not change the direction of its flow. Its therapeutic effect is dependent upon the chemical and physiological changes it produces in the tissues; and an even flow of electrons

(as above described) is accompanied by a general movement of ions, similar to that which takes place in an aqueous salt solution. A modified galvanic current, known as the surging or undulating current, is much employed among medical men in the treatment of paralysis. This is the purpose for which I use this current among the small animals, and I usually work by immersing the foot of the affected leg in a solution of common salt, in which also lies one wire from the battery. The other wire is attached to a lead electrode which has been applied to some other part of the body—generally the back. The electrode is wrapped in cotton-wool soaked in salt solution and the area of its contact with the skin is previously clipped very close. As much current as 40 m.amp. is often given for 20 to 30 minutes daily. Sometimes I alternate the galvanic with the faradic current. At the present moment I am adopting this procedure for an attempted cure of paralysis of the auditory nerve in a Labrador retriever. An electrode is applied one on each side of the head daily for about five minutes. The dog in question is a beautiful specimen and was a wonderful worker in the field until overtaken by this unaccountable deafness.

Ionisation.—Ionisation is a therapeutic method for which a galvanic current is employed, only in this case, we utilise the ionic movement for the introduction into the body of the ions of certain drugs—not only caustics, such as zinc and copper, but also sedatives such as quinine or the salicylate ion of sodium salicylate. Such ionic medication is generally used for local conditions, but it may also have a general effect *via* the blood stream, the effect depending upon whether the selected ion has, or has not, an affinity for the skin. Iodine introduced in this way has been found, in a few minutes, in the saliva and urine. The electro-chemical influence of this current on the tissues may be either of a stimulating or of a sedative nature, the effect on pain being especially important in the treatment of neuralgia, neuritis, sciatica, etc. The influence of this current is felt throughout its whole path as it sweeps through the tissues, penetrating every single cell of the injured or inflamed nerve, down to its finest branches. Since the tissues of the animal body have in their composition water with various salts in solution —chlorides, phosphates, sulphates, etc.—partly split up into their respective ions, it follows that if a continuous electric current is passed through the body there will be a movement of ions. The direction of movement of the ions, however, varies according to the salts being used. This is very important indeed, for whereas salicylates, iodine and chlorine enter by the negative electrode, cocaine, quinine and the metals enter by the positive electrode. On entering the body some ions may unite with those of the tissues to form soluble compounds which are carried by lymph and blood to distant parts of the body. This occurs with salicylates, iodine, strychnine, etc. I employed sodium salicylate in weak solution for the treatment of my father's intensely painful arthritic hip, and it never failed to give him hours of relief—sufficient at any rate to enable him to get to sleep at night.

Zinc ions are much used in the treatment of septic conditions and I strongly recommend you to use this salt for sinuses, fistulæ, ulcers and septic wounds. A good solution is zinc sulph. 75 gr.; glycerine 2 oz.; water 35 oz. Also sodium salicylate, 2 per cent., in water. Dilute both stock solutions with equal parts of warm water just before use.

A few of those present may know that after the serious operation performed recently upon a well-known professor of veterinary surgery, it was found that his operation wound would not heal up. Ionization was finally resorted to and was completely successful.

Observers have recognised that ionisation exerts a marked "lytic" action—as exemplified by its effects in anchylosis; in neuralgic pain due to compression of a nerve in an exudate or in a cicatrix; and in the treatment of large scars in muscle, and among tendons, interfering with movement—namely, by solution and resorption of exudations and their products. Those of you who work among race horses may do worse than to test this out.

The pain and stiffness in joints following sprains, due very often to slight adhesions, and the pain due to inflammation of the synovial sheaths of tendons, have yielded in a remarkable manner to ionization with sodium salicylate or chlorine.

Faradism.—The Faradic current is an induced current of an alternating nature; that is to say, one in which the current is being continually reversed in direction at short intervals about 100 times per second. The aim of this current is to obtain muscular contractions of maximum strength with a minimum of sensation. Pushed to excess this current can produce quite disagreeable sensations, even tetany; thus for use on animals one has to be cautious and kindly. Successful results do not depend upon production of unbearable sensation, and we need only increase the strength of the current sufficient to cause the patient to be slightly uneasy.

I turn to this apparatus in cases of wasted muscles, completely paralysed muscles, and stiff joints. In the former case my wetted electrodes are affixed in such positions that the current flowing between them will traverse the whole affected muscle. For hemiplegia one electrode is placed on the opposite side of the head, and the other at the croup; whilst for paraplegia one electrode is fixed between the shoulder blades and the other is in a bowl of salt water in

which both hind feet of the patient are also immersed. Usually not more than 10 minutes' treatment with a gentle current is given daily, and it is surprising how inert muscles soon begin to show a little kick or reaction to the stimulus applied. In the human being the Faradic current is employed for a number of other conditions, notably obesity, hysterical spasms, feigned catalepsy, flat foot and chronic synovitis.

Radiant Heat.—A certain firm of radiant-heat-lamp makers has recently been busily canvassing doctors and veterinary surgeons alike, and in many cases has succeeded in selling a lamp. I have several times been asked my opinion as to the efficacy of these lamps. Personally I took one on trial for a week and finally purchased a similar, but far better, article from Messrs. Arnold and Sons. This is the instrument here, and you will note that it is of imposing appearance and of strong build. It is fitted with two burners—one giving off "red" rays, and the other "infra-red" rays.

When I was last in Bath, at one of your meetings, I explained how light rays were split up. Visible light is split up on a streptoscope into violet, indigo, blue, green, yellow, orange and red. *Invisible* light rays exist both below and above the visible rays, so that ultra-violet rays are below the violet, and infra-red rays above the red. Whilst the ultra-violet rays are cold and only slightly penetrating, the infra-red are hot, are of considerably longer wave length, and are capable of deep penetration of the body.

As the red rays are of shorter wave length than the infra-red rays, they are hotter, and are emitted in great abundance by any red-flowing hot-body such as a red-hot poker, or an electric fire, etc. But a hot body which is black or nearly so (such as an electric fire would be just after the current has been turned off) emits infra-red rays of longer wave length. These have greater penetrative value, and after entry into the tissues they are absorbed and transformed into latent heat which is carried away by the lymph and blood streams to deeper parts.

They are said to set the blood into maintained forced oscillations; to amplify the capillary blood circulation, and in consequence to draw blood to the surface from other congested parts. They are said also to stimulate the individual oscillation of the living albumen molecule, and thereby of the living cells, in such a way that the formation of new cells is speeded up enormously.

Whatever the manner may be in which they produce their effects, there is no shadow of doubt that in therapeutics they are most valuable. In the relief of rheumatism, lumbago, sciatica, neuralgia, sprains, and painful operation wounds I have personally proved their worth.

In this connection I can again refer to my father because, during the weeks of his acute illness when he stayed at my home, he was so appreciative of the relief afforded by these rays that he used to go down to my surgery in the middle of the night and apply them to himself.

Some months ago I had to treat an Alsatian puppy which was continually grovelling upon its belly, unable to stand up, claws all protruded and flexed—clutching the floor, and shrieking if anyone attempted to stand him up, or even to touch the skin: a condition of hyperæsthesia which I looked upon as due to rheumatism. In this belief I treated him with salicylates and radiant heat, and in a very brief time the effect was obvious and very gratifying.

More recently I had a dog brought in late at night with paraplegia, great uneasiness and tenderness about the back. After some questioning, I decided the case was probably of rheumatic origin and suggested that infra-red rays should be directed on the dog for about 15 minutes—forthwith. Whilst this was being carried out the owner asked if I really believed in that sort of treatment, and whether it was not all "bunkum." His query was answered when the dog, which previously could not walk, jumped off the table and ran about the room as soon as it was released.

For those cases of collapse which sometimes follow upon severe operations, injuries, enteritis, etc., etc., radiant heat applied directly over the animal's body from above, is far better than all the hot water bottles ever invented.

Electric Cautery.—I would now like to show you a small cautery set, the parts of which I purchased and personally assembled. It thus cost me about £2 10s. instead of six guineas. For years I had employed a small firing iron and a pair of plated clams for the castration of old male cats and of dogs and by that method I had never had a failure, *i.e.*, post-operative hæmorrhage or sepsis. The heating of the iron, however, had always been a bother, and this electric cautery was designed to take its place. It consists merely of a six volt low-tension battery in a wooden case, on the lid of which is mounted a rheostat. By means of the latter I can regulate the heat of the platinum knife. The apparatus is, of course, equally useful for the excision of warts, small tumours, etc., and for closing open blood vessels.

Ophthalmoscope.—This ophthalmoscope (exhibited) was originally built for use with dry batteries; but as in course of time the batteries had a habit of swelling and corroding—rendering them very difficult to extricate for renewal—I sought a better method of getting electric light, and had it wired so that the two leads could be attached to a wet battery. If the dry battery was found discharged just when it was wanted, the whole instrument was rendered useless; whereas my wet battery is never discharged, as

I can charge it at home from the main supply.

Clipping Machine.—For those practitioners who conduct a small animal practice, this small compact machine will be found invaluable. Worked from the main supply, light and easy to handle, quick and precise in action, and working with a minimum of noise, it represents the best appliance I have yet discovered for clipping purposes. By the use of deep lower blades, the hair can be left from ½ to 1 inch long if one only wishes to cool an animal during a hot summer.

[Major Kirk then exhibited a number of surgical instruments and appliances, some of which had been made to his own design. He had been particularly requested to show specimens of whelping forceps.]

THE CLINICAL DIAGNOSIS OF LEG PARALYSIS IN FOWLS

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From a consideration of the literature relative to this disease it is clear that some investigators are dealing with several diseases which, although characterised by paralytic symptoms, are caused by different factors. This has confused the issue considerably, with the result that an adequate understanding of the fundamental feature—paralysis—is an urgent necessity. From combined clinical and *post-mortem* examinations it would appear that a study of the differential diagnosis of the disease in its prevalent form, as a more or less chronic ailment, is not difficult, because it is characterised by a *specific* type of paralysis, in association with a macroscopic enlargement of one or more of the major nerves. On the other hand, if the disease occurs as an acute or peracute form without such features, then clinical diagnosis is likely to be very difficult.

The following abstracts from papers on fowl paralysis will serve to show the indefiniteness of the paralysis in question. Marek (1904) describes the disease thus:—"Symptoms of paresis of the legs and wings, unequal on the two sides," while Niemann (1929) defines fowl paralysis as "Complete or partial loss of motor function of the muscles of the posterior limb, or of the cervical musculature without other outward manifestation of the disease." It can thus be seen that Marek fails to mention symptoms involving the neck or eyes, and that Niemann definitely excludes cases showing wing signs. Such a description as that by Niemann is obviously useless, because a bird exhibiting *any leg paralysis* would be classified as suffering from the specific disease "Fowl Paralysis," whereas in reality it might be one of many diseases characterised by awkward gait. Kaupp (1921) speaks of "lameness in one or both legs." Pappenheimer, Dunn and Cone (1929) define their cases of paralysis as being "more often spastic than flaccid, and sometimes accompanied by increased reflexes or even by chronic spasms." This statement is of the highest importance because either the disease investigated by these workers is entirely different from that studied in this country, or an incorrect interpretation of the clinical signs has been accorded by Pappenheimer and his colleagues. Bayon's remarks (1931) tend to confirm our own findings, thus, "owing to a flaccid paralysis of the neck muscles, the beak was trailed," also "the paralysed legs were soft . . . all muscles appeared to lack tone."

In view of the frequent occurrence of paralysis as a clinical sign associated with specific diseases in poultry, and in order to assist differentiating such conditions, it is necessary to review the fundamental factors associated with the symptom paralysis. In this paper it is intended to deal only with paralysis affecting the leg, and not the wing or neck.

Paralysis may show itself either as a general awkwardness of gait uncomplicated by serious deformities, or as a definite picture associated with some special limb abnormality.

The types of paralysis which are encountered in poultry practice are usually of the latter type and as such can be classified.

Very little information is available concerning the question of loss of sensation as well as of motor function, because of the very hard skin which surrounds the digits, but in cases of true "Fowl Paralysis," *i.e.*, neuro-lymphomatosis gallinarum, both appear to be lost and thus the term "Paraplegia" may be applied. Unquestionably it is not merely a loss of sensation producing an anæsthetic condition of the limb which is present, and therefore it would be incorrect to classify the signs in birds suffering from fowl paralysis as "sensory"; but, as the naked eye nerve lesions usually appear frequently between the nucleus of origin (in the spinal cord) and the free end of the nerve, the terms "Peripheral Paralysis" and "Organic Paralysis" are appropriate. As the essential lesion consists of an infiltration of the nerve axis by "lymphoid" cells, which latter interfere with the conduction of the nerve impulse, it would not be incorrect to apply the term "Compression Paralysis," but without qualification this term suggests a clinical picture of somewhat different origin. Similarly with the term "Crural Paralysis" which denotes an affection of the thighs; for, although the femoral nerve supplying the quadriceps femoris muscles, extending the stifle (knee) joint, are frequently involved, other parts of the limb are affected more commonly. At first sight the disease appears to be essentially a "Motor Paralysis" (affecting the voluntary muscles) but lesions may also be noted in the autonomic nervous system situated in the lumbar sacral region; most certainly the disease

is not of myogenic origin and therefore the paralysis should not be called "Myopathic," but "Neural."

The paralysis may be "Cruciate" affecting one wing and the opposite leg, or it may be "Hemiplegic" involving only one *side* of the body: it may affect only one *limb* or any combination of all four limbs.

It is clear therefore that in true fowl paralysis we have an organic, neurogenic paraplegia exhibited as a peripheral paralysis, but this description of the specific type of limb paralysis is inadequate for the disease, because structures other than the legs are affected.

It has been our experience to find that the disease assumes a chronic course in many outbreaks, thus conforming to the term "Creeping or Wasting Paralysis" indicative of progressive muscular atrophy, although apparently some outbreaks of the disease are more or less acute and the affected muscles do not have time to shrink markedly.

Pullets showing typical signs of fowl paralysis need to be differentiated from birds exhibiting other affections with paralysis of the legs. In some instances this is relatively easy, but occasionally there is great difficulty. Thus, it is possible to observe in typical cases of fowl paralysis an inability of the bird to extend the digits forwards. In really advanced cases when there is complete paralysis of the "extensors" the opposing flexor muscles draw the toes backward to form "a claw." Other investigators have observed this typical posture; thus, Warrack and Dalling (1931) say "The claw is found usually more or less closed or in a clutching position"; while Downham (1931) states "A clutching claw is very characteristic of the disease." It would thus appear that a bird exhibiting an *extensor paralysis affecting the digits* is, in all probability, one affected with true fowl paralysis. This paralysis is not merely motor but, as previously stated, also sensory, which fact can be determined by means of two methods, *i.e.*, if the digits are crushed or pinched no pain is felt (in advanced cases): and if the enlarged nerve (part of the main sciatic nerve) be dissected and traced to its peripheral origin it will be seen to arise commonly from the integument supplying the terminal phalanx of the fourth digit. This is an important fact, because loss of sensation to the digits will inevitably mean loss of the natural perching reflex. Is this disorganised sensation perhaps associated with the cause of the disease and not the effect? It is well known that modern housing conditions frequently fail to provide anything like natural perches for birds, and, as it has been shown from investigations carried out at this laboratory that at least 75 per cent. of the outbreaks of fowl paralysis are associated with intensive rearing methods, the coincidence is strongly marked. Battery brooders containing wire floors and intensive houses with perches conspicuous by their absence, or other houses with unnatural "slatted" floors, are abnormal because they fail to initiate the perching reflex.

In order to understand the relationship of the sciatic nerve to this extensor paralysis of the digits it is necessary to review a general dissection of the part, particularly with reference to the components of the main sciatic nerve trunk; in addition, the lumbar portion of the lumbosacral plexus needs attention. It will be convenient to discuss this latter aspect first.

The lumbar nerve plexus is really quite separate from that of the sacrum, and unless the dissector specifically removes the anterior half of the kidney tissue it will not be revealed. The plexus consists of three main and two fine subsidiary nerves. The first slip passes to the abdominal muscles and may for the purpose of this paper, be discarded. The first and second main nerves join in the plexus, and anterior branches pass to the sartorius muscle and skin over the lateral and anterior face of the thigh as far down as the knee. The next large nerve issuing from the plexus is composed of branches from all three major lumbar nerves: it is distributed to the quadriceps femoris muscles (*Mm. vastus medialis* and *lateralis*, and *M. rectus femoris*.). The most posterior branches of the plexus pass to the internal obturator and adductor longus muscles. One very long nerve may be seen passing superficially down the medial side of the limb to supply the skin over the antero-medial aspect of the genu.

Bearing this anatomical distribution in mind and being aware of the actions which these muscles possess on the limb, it is not difficult to see that should "lymphoid" cells infiltrate this nerve plexus, the main paralysis will affect the extensor muscles of the knee joint, namely, the quadriceps group, and at the same time desensitise the skin of this area. In actual practice this occurs. The above laboratory possesses several specimens which illustrate this macroscopic nerve enlargement.

During life such affected birds showed a *flaccid* paralysis of the extensor muscles of the knee-joint; the tibia could not be extended in relation to the femur, and there was also a concurrent failure of the femur to be flexed on the hip. This type of paralysis can occur independently of any involvement of the sciatic nerve. The associated sympathetic nerve (running parallel to the lateral border of the fused bodies of the vertebræ of this region) may also quite often be found to be enlarged.

If it happens that the sacral plexus is uninvolved then the opposing flexor muscles of the knee (the extensors of the hip) pull the limb backwards.

These diminished movements and attitudes can best be seen if the animal is held up (as described later), comparison being made with the sound limb, or, if both legs are affected, then it

may be necessary to secure a healthy hen for purposes of comparison.

In order to maintain some idea of balance, a bird so affected with neuro-lymphomatosis usually throws forward the opposing limb and the wings are dropped to whichever side they may be required, also for the purpose of aiding an upright sitting posture.

The unaffected leg may become tetanised, due to the persistent unnatural position, and a *spastic* condition of the leg is noted on examination. It is possible it is this type of paralysis, one of positional tetany, which has been recorded by Pappenheimer and his colleagues. Obviously, if such is the case, the description given by them is incorrect for "fowl paralysis"; because the *original* paralysis is unquestionably flaccid, and in every sense a true paralysis.

In such instances the dropped wings may also be confounded with the primary paralysis, but Warrack and Dalling have previously pointed out that when affected by true fowl paralysis the drop of the wing is permanent, and if the affected member be raised the animal has no power to retain the wing in the normal, raised position; consequently the wing again drops.

It is recognised that in coccidiosis a paresis of the leg and wings occurs, and this for some time was not differentiated from the paralytic signs of so-called fowl paralysis, but with practice it is comparatively easy to decide which is which. Coccidial paresis is characterised by an affliction of the flexor muscles of the digits. There is no "clutching claw" attitude, but instead the birds are seen to sink at the hocks, *i.e.*, increase the flexion of the tibio-metatarsal joint. Usually both legs are affected in equal degree and the birds are seen to be unable to stand solely on their toes—their bodies seem too heavy for their legs, so that it is common to find the whole of the legs from the point of the hock to the tip of the digits resting on the ground.

In endeavouring to find out which type of paralysis or paresis is present it will be found valuable to adopt any of the following methods of examination:—

(1) Grasp the bird by both wings (at the base) in order to observe the position of the legs. Then if one leg hangs limp or projects downwards beyond the other, such abnormality may be noted quickly. If the bird is lowered *rapidly* towards the ground a natural reflex should be noted—it constitutes an extension of the hock joint with a concomitant well-marked extension of the digits. This spreading out of the toes in a fan-wise fashion is absent in a great many cases of fowl paralysis, but still persists in cases of paresis due primarily to coccidial infestations.

(2) Grasp the skin of the back between the wings and having placed the bird on a table proceed to propel the bird forwards very gently. Locomotor abnormalities may then be noticed easily, whereas if the wings themselves are held certain reflexes prevent the birds using their legs freely for walking purposes.

(3) For early cases of fowl paralysis, stand the bird on a table and grasp the skin in the region of the crop. Gentle forward traction usually stimulates the birds to initiate walking movements, and again any defects may be recognised quickly. An inability to extend one or several phalanges of one or several digits is believed to represent an initial sign of fowl paralysis.

(4) Place the bird on its back and observe the motions of the legs. Vigorous kicking movements normally take place, but in fowl paralysis the affected legs appear semi- or completely paralysed. The "resting" attitude of normal birds in this position is characterised by a more or less strongly marked flexion of the hocks. Bicycling movements periodically occur, to end in the typical "resting" flexion position.

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That horses are coming into their own again was the opinion expressed by the Lord Mayor of Cardiff at a dinner held to celebrate the success of the Cardiff May horse show. People in certain classes of business, he said, were realising that horses constituted the most economical means of transport.

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"It may not be generally realised," says the *Farmer and Stockbreeder*, "that the progress made by the British Friesian breed of cattle is largely due to the influence of the thirty-nine males and twenty females specially imported from Holland by the British Friesian Cattle Society in 1914.

"Several of the imported animals lived to a good age, but all are now dead, with one exception—the cow Inwood Rijpma 10th. Born in March, 1913, this cow has recently calved for the fifteenth time, and her progeny comprise ten registered females and five registered bulls.

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Messrs. Baillière, Tindall and Cox have forwarded the latest issue of their Veterinary Catalogue, which also contains a list of books on Animal Husbandry, including such subjects as Breeding Management, Small Animals, Poultry, and Beekeeping. The catalogue itself is the most complete catalogue of English and American veterinary books published and as such is a handy and valuable reference to current literature.

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In the 12 months ended April 23rd, 3,654 cattle, 5,409 sheep, 1,204 pigs, and 4 goats were slaughtered for foot-and-mouth disease, and the owners were paid £95,483 13s. in compensation.

THE VETERINARY PROFESSION IN SOUTH AFRICA

The Pre-Union Police Forces: (a) Cape Colony

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Of the half-dozen police corps in the Cape Colony[1] before the establishment of the South African Mounted Rifles and South African Police (March 31st, 1913), it was only the Cape Mounted Rifles which, at some time of its existence, possessed a regimental veterinary officer.

CAPE MOUNTED RIFLES (1878-1913)[2]

The above Corps, unlike the original Cape Mounted Rifles (1827-1870), was maintained entirely by the Cape Government, until, of course, after amalgamation of the four Colonies (May 31st, 1910), when the Union Treasury was responsible. Although officially dating back to 1878, the Unit in reality was a continuation of the Frontier Armed Mounted Police, established in 1855 for police duty in the troubled eastern border districts and reorganised after the 9th Kaffir War (1877). This step was accompanied not only by a change of designation but also by greater efficiency, and during its 35 years' existence the Cape Mounted Rifles worthily upheld the traditions built up by its predecessor. In 1892 was enacted legislation, Colonial Forces Act (No. 32), which consolidated pre-existing Cape Mounted Rifles and volunteer laws and which defined the Cape Mounted Rifles as the "Permanent Colonial Force both for police and defence.[3] The Volunteer Forces, both regular and irregular, will receive attention elsewhere. Headquarters were at Kingwilliamstown[4] and detachments of the Corps were distributed throughout the Border and Transkeian magistracies, the duties frequently including the enforcement of stock disease regulations[5]. The establishment varied from approximately 1,200 men in the early eighties and during the 2nd Boer War (1899-1902), to 550 at the date of Union. Of the latter, quite a considerable number were employed from 1906 along the East Griqualand border in order to prevent East Coast fever entering Cape Colony from Natal.

Subsequent to 1892 all candidates for appointment as officers were required to pass an examination, one of the subjects being stable management, including an elementary knowledge of veterinary hygiene. Until 1903 horses were provided by the men, each of whom paid 2s. *per mensem* to the remount fund and in the event of a death, assistance varying from quarter to full value would be received therefrom. After 1903 horses and all expenses in connection therewith, *e.g.*, rations, farriery and veterinary charges, were borne by the Government.

The Cape Mounted Rifles was represented in the majority of South African campaigns, the most important being the Moirosi War (1879), 5th Basuto War (1880-1), Matabele War (1893), Langeberg operations (1897), 2nd Boer War (1899-1902) and Natal Rebellion (1906). Its chief claim to honour, however, was at the Siege of Wepener (April, 1900), when a garrison totalling 1,800 men successfully defended Jammersberg Bridge against a force of 6,000 Boers commanded by General C. de Wet.

VETERINARIANS

Although Natal took the lead in the appointment of the first civil state veterinarian (colonial veterinary surgeon), yet the Cape Government first realised the need for a veterinary officer for its permanent defence force. It is, indeed, strange that the Cape Mounted Police, formed in the early eighties for the protection of farmers in the North-West Cape Colony, was never provided with the services of a veterinarian, although the establishment exceeded 500 men.

The scale of pay authorised at the formation of the Corps was £400 p.a. whereas the surgeon drew £456 p.a. Thirty years later, however, the pay of the latter was £400, while the veterinary appointment had been abolished.

According to Williams (*l.c.* 2, p. 132), the first veterinary appointment was that of Hon. Lieut.

[1] Cape Mounted Rifles, Cape Mounted Police, Cape Urban Police, Cape Rural Police, District Mounted Police and Native Territories Police. See (*a*) "The Police Forces in South Africa," by Sub-Inspector F. W. Cooper, South African Police, *The Police Journal*, Vol. II, p. 247, 1929. (*b*) *Official Year Book, Union of South Africa*, No. 5, p. 391. Govt. Printing and Stationery Office, Pretoria.

[2] See Williams, B. (1909). *Record of the C.M.R.* Causton and Sons, London. Much information concerning both the C.M.R. and Cape Volunteers has been obtained from the following reports (usually annual) of the Cape Colonial Forces: March 31st, 1879, 1879-1898, 1903, June 30th, 1904, December 31st, 1904, and 1906-09, kindly loaned by Dr. Graham Botha, Chief Archivist, Capetown.

[3] Regulation 37 (Government Gazette, November 14th, 1892) provided for a fine of 1s. p.d. if owing to negligence, *e.g.*, sore-back, a horse was rendered unfit for duty. This amount went to the remount fund.

[4] Except for the period 1894-1904 when Headquarters were at Umtata.

[5] *e.g.*, Umtata redwater line (Report 1883), foot-and-mouth disease (Reports 1892 and 1893), rinderpest (Report 1896), redwater cordon, Bechuanaland (Report 1907).

Thomas Butcher Scott Dawkins, who, joining August 29th, 1879, preceded Hon. Lieut. George Garnett by eight months. From January 29th, 1880, to August 31st, 1884, the regiment was divided into a Right and a Left Wing, Dawkins being V.O. of the Right Wing and Garnett V.O. of the Left Wing[6]. In order to reduce expenditure, Commandant-General Gordon (who had succeeded General Clarke) suggested, in 1882, the amalgamation of the two wings. At the time, the post of V.O. to the Left Wing was vacant and the Commandant-General did not propose to fill it, although previously applications had been invited "from duly qualified practitioners in the Colony" at a salary of £400 (*Gazette*, May 12th, 1882). Dawkins, the remaining V.O., left before amalgamation in 1884, the C.M.R. subsequently being without a permanent V.O. for 20 years!

It is probable that Dawkins[7] took part in the Moirosi War, and that both he and Garnett saw active service in the 5th Basuto War. Possibly a third veterinarian, Thomas Henry Merrick, participated in the latter war, also as a member of the C.M.R. Associated with the Corps for a short time at the end of the same operations was Alexander Henderson Gentle who, desiring "to take part in the Basuto War . . . . joined the C.M.R. in London . . . . arrived at Capetown on April 27th, 1881, ... , and went ashore at East London for Kingwilliamstown." He was kept at Headquarters passing remounts, and was "gazetted, October 6th, 1881, in Colonial Forces Orders, Veterinary Surgeon, C.M.R. vice Garnett retired," but left shortly afterwards[8]. According to Williams (p. 132), however, Garnett's service terminated six months later than indicated above.

Merrick, in a discussion on unqualified veterinarians in the Colonies, at a Council Meeting of the R.C.V.S. on July 5th, 1893, stated that he had spent four years in South Africa and considered that "there ought to be some protection for those who had qualified here and had emigrated to the Colonies." At the subsequent meeting he added that "Veterinary surgeons in Cape Colony could not live unless they were subsidised by the Government."[9] Little did Merrick realise that nearly 40 years later not only would members of the Royal College of Veterinary Surgeons have the same grievance,[10] but that veterinary graduates of the University of Pretoria received no more legal protection than unqualified practitioners: and this condition of affairs where the State was directly responsible for their training!

In 1897 two veterinarians, James Walker and William Newman, joined the C.M.R. as privates, there being no commissioned appointments for members of the profession at the time. Walker, although receiving promotion to corporal, performed the duties of a Veterinary Officer, for which he received the pay of an N.C.O., a striking example of the parsimony of the Cape Government. Walker left the C.M.R. shortly before the 2nd Boer War and at its outbreak was appointed Veterinary Captain to the South African Light Horse, thereafter accompanying the Relief Force to Ladysmith. Newman was stationed for some time at Umtata, from which town he contributed an article, "Biliary Fever at the Cape," to the *Veterinary Record*.[11] He later joined Bethune's Mounted Infantry and after the Boer War served as a V.O. in the South African Constabulary.

A veterinary appointment of some interest about this period was that of G. N. Tomlinson, who was a member of the Cape Civil Veterinary Department. From March 25th, 1897, to August 25th, 1897, he "was attached to the Cape Mounted Rifles as Veterinary Surgeon to the Bechuanaland Field Force, in which he was busy with rinderpest, anthrax, horse sickness, influenza and other diseases."[12] At the time the Cape Government was engaged in quelling a rebellion in British Bechuanaland instigated by a certain Bechuanan, Galishwe.

During the period 1883-1903 there was no regimental V.O. and when advice was required the C.V.D. was consulted. In the Report of the O.C., C.M.R., for 1897, Colonel Dalgety (p. 3) refers to outbreaks of glanders and anthrax at Umtata, the former disease affecting a troop horse. Hutchence,[13] the Assistant Veterinary Surgeon (C.V.D.), destroyed the animal and advised anthrax inoculation of all government horses and mules in the locality. This was duly "carried out by Private Newman, who is a qualified veterinary surgeon, the work being done in a very satisfactory manner." Dalgety adds that the remount problem was acute and that the Corps when fully horsed had "about 1,050 horses, and I certainly consider that at

[6]During the early days, the Right and Left Wings each had a remount fund to which every man contributed 2s. 6d. p.m. As a result of the campaigns of 1878-81 both funds were exhausted, the premium being insufficient for war periods.

[7]Dawkins subsequently resided in Natal.

[8]From a private letter dated December 6th, 1926.

[9]*Vet. Jl.* XXXVII, p. 129 and p. 367 (1893). Apparently at the time there was an M.R.C.V.S. practising at Durban.

[10]Natal, by Act 21 of 1899, protected registered veterinary surgeons.

[11]*Vet. Rec.* X. p. 672. (May 21st, 1898).

[12]Report of Colonial V.S. for 1897. Cape of Good Hope, p. 100.

[13]Hutchence was stationed in the Transkeian Territories from 1897 until his death in 1910 and during his service frequently attended to the horses and mules of the C.M.R.

least one qualified veterinary surgeon should be gazetted to the Regiment. This officer could hold classes of instruction, when practicable, in addition to his ordinary work, and by this means a few men of each squadron would be able to treat some of the cases and diseases which are of more frequent occurrence." He further states that within the last few years the purchase price of remounts had advanced from £21 to £25, and it appeared necessary in some cases to increase the amount to £30. According to Walker,[14] the most serious disease in his time was " staggers " (enzootic liver cirrhosis). The treatment adopted was a good purgative which, however, only brought about temporary improvement.

In Colonel Dalgety's Report for 1898 he again (p. 3) urged the appointment of a regimental V.O. He mentions: " During the last year at Headquarters, one of the men (a qualified veterinary surgeon) has been looking after the horses at Umtata, and has been paid by the men themselves, but I regret to say that he has now taken his discharge." In the next paragraph he refers to the purchase of 207 horses, early in 1898, of which number 38 died or were condemned owing to " change of veldt, want of stabling, etc., etc." Probably if a strict veterinary examination had been carried out before purchase, this mortality would not have occurred, and the salary of a regimental V.O. amply covered for two years.

Little is known as to the veterinary arrangements made during the 2nd Boer War, but it is understood that for some time, *e.g.*, during the Siege of Wepener, Edward Fern was attached to the Corps.

In 1903[15] James Arthur Worsley, formerly in the Cape C.V.D., was appointed regimental V.O. with the rank of Hon. Lieutenant. In this year the horse casualty return included 24 for casting and sale, and 79 died or destroyed, of which 12 were glanders and 22 biliary fever. As during and since the late war the C.M.R. had been mounted on government horses, a stricter system of horse management was necessary and it was for this purpose a veterinary appointment had been made. Further, a remount depôt was established at Tsolo with suitable buildings and grazing. So difficult was it to procure suitable remounts for the Corps that 140 imported horses, including Argentines, North Americans and Australians, were purchased at this period. The saddlery also received attention, a Board of Officers deciding that the colonial pattern be adopted by both the C.M.R. and C.M.P.

[14]In a conversation July 18th, 1929.

[15]*Vide* Report of Commandant-General, Cape Colonial Forces for 1903, p. 10.

In 1904[16] Colonel Lukin, then Commandant-General of the Cape Colonial Forces, and O.C., C.M.R., reported: " The Veterinary Surgeon has been successful in training members of the Regiment as farriers and shoeing smiths . . . . Recruits are . . . put through a short veterinary course."

Two years later Lukin stated[17] that the horses generally were in good condition and that those " which went on active service to Natal . . . . stood the work very well." Owing to the large purchases made by the Natal and German South-West African Governments, it had been necessary to import a draft of 47 Argentines. In 1906 (*Gazette*, April 6th, 1906) V.O. Hon. Lieut. Worsley was promoted Hon. Captain. At the end of August, 1907 (*Gazette*, November 8th, 1907) he returned to the C.V.D. but was permitted to retain his rank and wear the uniform of his former Unit (*Gazette*, August 10th, 1909).

In 1907 the horse casualty return (for 11 months) showed 81 animals for sale, including 44 mares and a stallion on closing down of the remount farm, and 87 which had died or were destroyed. Four of the latter had been shot on account of glanders.

At the end of 1908 the number of horses in the Corps was 559, the purchase price of certain remounts procured in East Griqualand averaging £23. A few years previously the price of these would have varied between £25-£30. Thirty-nine horses were cast and sold during the year and 53 died or were destroyed, including 13 from glanders.

In the last Report of the Commandant-General (year ending December 31st, 1909), the following passage occurs: " The inauguration of courses of instruction in veterinary first-aid and stable management has led to a marked improvement in horsemanship." Since at this time there was no regimental V.O., it is not known who gave the instruction.

During the last few years the daily cost of feeding horses had averaged slightly over 1s. p.d.

[16]*Vide* Report of Commandant-General, Cape Colonial Forces for half year ending June 30th, 1904, p. 3.

[17]*Vide* Report of Commandant-General, Cape Colonial Forces for 1906, p. 10.

(*Concluded on next page.*)

Judge Richardson, during the hearing of a case at Durham County Court, said the time would soon come when people would want lights fixed on cows' tails at night.

* * * * *

The Propaganda Committee of the Clydesdale Horse Society can now rest in peace. A representative entry of Clydesdales has been secured for the R.A.S.E. Show at Southampton, and the section is saved.

APPENDIX
VETERINARIANS, CAPE MOUNTED RIFLES
(1878-1913)

Name.	Period of Service.	Born.	College and qualified.	Died.	Further remarks.
(18) Dawkins, T. B. S.	29/8/79-21/4/83	—	1872, Lond.	1916	Died Maritzburg
(18) Garnett, G. ...	7/5/80-31/3/82	—	1875, Lond.	1920	—
Merrick, T. H. ...	—	—	1874 Lond.	1894	F.R.C.V.S., 1891
Gentle, A. H. ...	1881	25/4/51	1880, Edin.	—	—
Tomlinson, G. N.	25/3/97-25/8/97	—	1895, Lond.	Dead	—
Walker, J. ...	1897-8	28/8/68	1896, Edin.	—	—
(18) Newman, W. ...	1897-8	—	1896, Edin.	—	—
Fern, E.	1900-1	16/7/61	1891, New Edin.	—	—
(19) Worsley, J. A. ...	1/3/03-31/8/07	10/10/66	1887, Lond.	21/8/14	Died at Prieska during G.S.W.A. campaign

(18) Only these three names are given in Williams' " Record of the C.M.R.," p. 132.
(19) From 1893-1896 Patrick J. Xeres Kearney served in the C.M.R. At this time he had not completed his veterinary course, but did so in 1904.

VETERINARY PUBLIC HEALTH NOTES

At the last meeting of the Cardiganshire Agricultural Committee the clerk presented an interesting return showing the number of cases, and the cost of administering the Tuberculosis Order of 1925 for the years 1928 to 1932. The numbers of cattle affected were: 1928, 135; 1929, 147; 1930, 138; 1931, 110; and 1932, 78. The net cost was: 1928, £698 13s.; 1929, £657 18s. 7d.; 1930, £675 14s. 4d.; 1931, £542 11s. 9d.; and 1932, £421 2s. 2d.

Referring to the reductions, Mr. David Evans asked whether it could be assumed that tuberculosis was declining, or that the reduction was due to slackness.

The Clerk replied that it was difficult to answer.

The Chairman remarked that with closer co-operation between the County Public Health Committee, the Agricultural Committee, and the rural authorities there would be an improvement in the production of milk.

. . . . .

Discussing milk production in relation to public health at a recent meeting of the Skipton Rural Council, Dr. W. Scatterty (Medical Officer of Health) said the unsatisfactory feature of the local position was the number of dairy cows suffering from tuberculosis; and the pity of it was that not all affected cows were notified by the farmers concerned, but had to be diagnosed by the veterinary inspector on his periodical visits to farms. It would be gratifying if the farmers would show a little more interest in this matter, both for their own sake and for the sake of the child population of the district.

Mr. R. Hodgson said the majority of farmers thought the duty of diagnosing and notifying tuberculosis devolved on the veterinary inspector.

The Clerk: The responsibility in the first instance rests on the farmer to report any cows that he even suspects may be suffering from tuberculosis.

The Chairman (Mr. G. S. Green) said it was important that the local public and the farmers should know that the obligation in the matter was on the farmer.

* * * * *

WARBLED SOLE LEATHER

In the recently-issued report of the 1931 campaign conducted by the Warble Fly Committee of the Leathersellers' Company, the following illustration is given of the loss caused by warble holes in leather:—" When a bend is cut up into soles for the manufacture or repair of shoes, there is a certain wastage of leather due to the fact that, owing to the shape of the soles, clippings are left over after the soles have been cut which are too small to be of use. It has been ascertained from practical experience that in a first-class bend, that is to say, a bend which is practically free from defects, the normal wastage is not more than five per cent. of the weight of the original bend.

" The existence of only a few warble holes is enough to make an otherwise first-class bend into a second, and the wastage in this case is about ten per cent. A bend with any appreciable number of warble holes has to be classed as a third, and in the case of third-class bends the wastage rises to 17½ per cent. of the weight of the original leather. In addition to this, the warble holes are found in the best part of the bend and in cutting the soles the warbles have to be avoided, so that the finest leather is wasted.

" Another fact which is not always appreciated is the loss in the value of leather due to the presence of blind warbles. It is often assumed that after the warble has left the back of the animal the hole gradually closes and heals up, leaving the hide, to all intents and purposes, as sound as if it had never been warbled. This, however, is incorrect.

" It is true that the warble holes do heal up, but in the resultant leather the places where the holes have been appear as whitish spots, known as ' blind ' warbles. These spots are definitely inferior to sound leather from the point of view of strength, resistance in wear and waterproof qualities. For some purposes leather with blind warbles is practically useless. In the case of leather belting, for example, a belt containing blind warbles is liable to break at a much lower strain than sound leather, and in the soles of footwear, the leather is likely to let in water. The presence of an appreciable number of blind warbles in a bend may reduce its value by as much as 3d. per lb."

* * * * *

At a meeting of the Executive of the East Sussex Farmers' Union, one speaker on the warble fly question said he had dressed 250 and 300 head of cattle in a morning. He dressed them four times a year, and when he went round his cattle the other day they were practically free from warble fly, whereas last year there were between 40 and 50 warbles in each cow.

The Veterinary Record
June 11th, 1932.

ELECTRICITY IN VETERINARY PRACTICE

SOME revival of interest has recently been witnessed in electricity as an aid to diagnosis or therapeusis, and we are glad to observe that certain of our readers are paying attention to advances in technique and improvements in apparatus.

This is a healthy sign, for whilst the medical profession has resort, so frequently, to one or other of the branches of medical electricity, the veterinary profession should in no way lag behind.

It is an undisputed fact that hundreds of thousands of pounds have been expended, in various parts of the country, upon creating and equipping X-ray departments of hospitals, and clinics in which electricity or light rays may be applied to the human body. Indeed, no hospital would seem complete to-day without its electrical department, so highly is the value of electricity assessed, by the average medical practitioner, as an alleviator, if not an actual cure, of painful diseases.

It is interesting to relate that at the London Light and Electrical Clinic, which is under the general supervision of Sir Leonard Hill, the number of patients attending during the past year was 120,000. The total treatments exceeded those of the previous year by 67,000. Each department has its own medical officer and there are three visiting physicians. The clinic is now able to offer, through the Fellowship of Medicine, a post-graduate course in Physical Medicine, so that knowledge of this subject may be better spread among the profession in general. Unless there was a definite value in the study and application of medical electricity, one could hardly imagine that so large and costly an institution would be maintained.

The British Medical Association evidently must have come to a similar conclusion, for the most interesting part of the provisional programme for its centenary meeting this summer, is the inclusion, for the first time, of a Section devoted to Physical Medicine. We note that among the subjects for discussion, under this Section, are "Manipulation and Electricity in Therapeutics," and "The Menace of Quackery in Physical Medicine." These two papers should interest our veterinary readers, and it is hoped that our profession may be well represented.

Despite the popularity of medical electricity in many quarters, medical men are, however, by no means unanimous, and not infrequently one encounters sceptics who pronounce, in no uncertain terms, their distrust of it. In fact, some go even so far as to express a contempt for X-ray photography, preferring, as they say, to rely upon clinical examination for a diagnosis. At the same time, experts are proverbially prone to disagree, so that one must not place too great a reliance upon these extreme opinions. In persevering and painstaking hands, many methods will prove successful which, by less skilled or less enthusiastic application, may be an utter failure.

Countless instances have been recorded in which electricity has proved of undoubted value in the treatment of various selected conditions, and the unbeliever who suffers from neuritis, arthritis, muscular rheumatism, or etc., can test for himself the analgesic effect of the galvanic current, or of radiant heat, to mention but two electrical methods. Nevertheless, it should not be imagined that any and every condition is improved by electricity, for, like organotherapy, vaccine therapy and so many other therapeutical methods, it is not a cure-all.

It cannot be denied, by anybody who really has knowledge of the subject, in what wonderful manner ionisation will sometimes effect the healing of indolent ulcers and wounds, when other methods have seemingly failed; nor is the value of ultra-violet irradiation in the treatment of rickets disputed.

Increasing attention is being paid to the uses of diathermy both for surgical and medical cases, but on account of the high cost of the apparatus, combined with the comparatively short time it has been under trial, it is easy to appreciate that its possibilities have most likely not yet been fully explored.

Those veterinarians who read the Proceedings of the Royal Society of Medicine will not have failed to be impressed by the lengthy and varied discussions which take place in the Section of Electro-Therapeutics. As exemplifying how vast and important a field is covered by the term "Electro-therapeutics" it may be mentioned that all of the following branches of Physical Medicine are discussed from time to time by the above-mentioned Section:—Electrocution, lightning stroke, radiography, Faradism, galvanism, ionisation, diathermy and other high-frequency currents, static electricity, actinic light, radiant heat, electro-cautery, X-ray therapy and radium therapy, etc., etc. Several

excellent British journals are devoted to the subject, many of the articles in which are exceedingly illuminating.

In the light of such evidence, it seems a pity that rather more attention is not bestowed, by the general veterinary practitioner, upon this essentially clinical subject, though we are of course mindful of the hard and harassing lives many of these gentlemen endure. We are aware, too, that medical electricity, in all its branches, is a specialised study for which numerous practitioners could find no time even had they the inclination. Last, but not least, one must remember how great an obstacle to good and efficient work is presented by the very nature of our patients—an obstacle, however, which is probably not insuperable.

At the same time, we consider there is room for a greater number of specialists, among our members, in veterinary radiography and electrotherapeutics, than at present exists, and we cannot help feeling that the small-animal practitioners and lady graduates have the best facilities for pursuing this study. In the sister profession, specialists may be found for almost every ailment to which human flesh is heir, and it would seem that the time has now arrived when specialisation should find a far more prominent position in the veterinary profession than ever has been the case in the past.

The life cycle and the method of transmission of a common tapeworm, *Moneizia expansa*, of sheep has been a perplexing problem. According to Seddon, of Australia, the feeding of fresh ova is not followed by infestation and transmission is therefore not direct from sheep to sheep. Yards and pastures that have been contaminated with ova are later a source of infestation. Hay and other feed crops grown on infested soil may be a source of infestation. Soil may remain infested for a year. There is apparent immunity in lambs that have recovered from an infestation even when they are grazed on infested soil. An immunity may also be produced by drenching lambs with an emulsion prepared from freshly secured ripe proglottides, and according to tests may persist for several months. The life of this parasite in the sheep varies from 65 to 75 days. They become mature in 40 to 50 days and lay eggs from 20 to 30 days. —*Trop. Med. and Par.*

* * * * *

Avian tuberculosis is relatively prevalent in Germany, according to Klimmer. He reported that from 7 per cent. to 15 per cent. of chickens, 33 per cent. of parrots and a small percentage of turkeys, pigeons, ducks, geese, and canaries are affected. About one-fourth of swine tuberculosis in Germany is caused by the avian bacilli. Three to 7 per cent. of market eggs contained tubercle bacilli and 11 per cent. of the eggs from tuberculous fowl were infected.—*Bio. Abs.*

Clinical Communications

CASES OF LEAD POISONING IN CATTLE

W. LYLE STEWART, M.R.C.V.S.
Armstrong College, Newcastle-upon-Tyne

Shortly after a severe thunder and lightning storm in June of last year a sixteen-months Galloway bullock was discovered lying dead in a field. This animal was one of a score or so of bullocks and heifers which had been turned out to graze on forty acres of old pasture land the previous month. The owner suspected lightning stroke and a friend in general practice was requested to come and give an opinion. The carcass was examined twelve hours after death and anthrax negatived. There was, however, no evidence of burning, singeing or erythema of the hair or skin, no fractures and an absence of other indications of lightning, so that this explanation was not upheld. As the bullock had never been noticed ailing, and the circumstances left the owner in some doubt, it was decided to report to the insurance company.

Later my friend attended the *post-mortem* in consultation and although the cause of death was not clearly ascertained, it was held to be unconnected with lightning. Patches of congestion were observed beneath the mucous membrane of the rumen, and it was thought that possibly the animal had ingested a poisonous plant or shrub. No other abnormality was noted.

A week later another Galloway bullock was found dead in the same field and at the *post-mortem* three hairballs, as big as a man's fist, were discovered in the abomasum. The other organs seemed normal and the opinion was given that death was probably due to mechanical interference with the passage of food through the pylorus. Quite soon afterwards a third animal from the same pasture fell ill: it showed brain symptoms, dulness, was inclined to stagger and had a temperature of 105° F. In spite of treatment for indigestion this animal died twenty-four hours later and was buried by the owner without further examination. A few days afterwards a fourth animal showed similar symptoms. It went off feed, staggered when forced to walk, showed inco-ordination of movement and a temperature of 105° F. Breathing was normal and there was no diarrhœa. Treatment with purgatives and stimulants was of no avail and the animal died in a fit next day after falling over backwards.

A thorough *post-mortem* examination was now undertaken. Patches of congestion were again noted in the rumen, the omasum was

normal, but the abomasum and duodenum were slightly congested. The liver was light in colour and showed toxic changes. On cutting into the reticulum a cupful or more of lead particles entangled with ingesta was removed. It was then learned that earlier in the year a water pipe track had been cut through this field, and the metal from the reticulum was obviously waste lead from the plumber's brazier and pan which had been thrown on the pasture. Subsequently nearly a barrow load of waste lead was picked up along the track of the water pipe. No further trouble occurred.

The carcasses of the second and third animals were then exhumed and in each case a similar quantity of lead particles was discovered in the reticulum. Accordingly a diagnosis of lead poisoning was established.

While a full history of the case would undoubtedly have supplied a valuable pointer to early diagnosis, my friend feels that his experience forms an excellent illustration of what can happen, not so much through not knowing as through not looking. He desired me to publish the case as an example and warning to others, and to give the rule for *post-mortem* examinations, *i.e.*, never to allow oneself to be sidetracked out of making a complete examination of every organ.

* * * * *

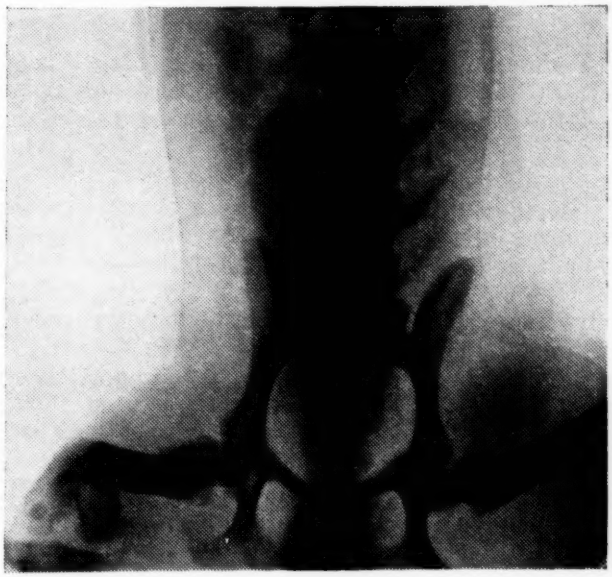
FRACTURE OF THE FEMUR OF THE DOG

HENRY TAYLOR, F.R.C.V.S.,
Haywards Heath

In the *Veterinary Record* for January 23rd, 1932, there is an excellent article by Mr. Frank Chambers, F.R.C.V.S., on the above subject, which deals more particularly with fractures of the shaft of the bone, the treatment of which is difficult and frequently unsatisfactory.

The accompanying skiagram depicts a fracture of the neck of the femur, which has not been displaced to the same extent as in the case reported by Mr. J. T. Edwards in the *Veterinary Record* of March 26th, 1932.

The patient, a Cairn terrier, had been lame for some weeks before he was shown to me, and the muscles of the leg had wasted. There was some enlargement over the hip joint and although the articulation felt prominent owing to the atrophy of the muscles, my examination made me form the opinion that there had been a fracture in that region. But I must admit that I thought the dog would in time recover the use of the leg even if he might be slightly lame. As time went on, however, he still hardly used it, so it was decided to X-ray him. This was done at our local hospital (a really fine institution with up-to-date apparatus). Dr.



C——, the pathologist, reported "there certainly has been a fracture of the neck of the femur as you suggested." He further said: "There is rarefaction of the head of the femur and a good deal of callus showing; there is probably union with some deformity in the position."

The dog is still somewhat lame, so the owner reports, even after a lapse of months since the onset. He chases rabbits without showing much inconvenience, but sometimes carries the leg when walking.

I think I have had cases of fracture in that spot where the damage was apparently greater, and yet the dogs became perfectly sound.

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Abstracts

[Undulant Fever Produced by *BRUCELLA ABORTUS*: The Possibility of Infection from Milk and the Probable Extent of Infection. Beattie, C. P. *Lancet*, 1932. No. xix. of Vol. 1. Pp. 1,002-1,005.]

Reports of cases of undulant fever in this country due to the *Brucella abortus* have aroused much interest in the question of the mode and extent of infection. It is generally agreed that the most potent source of infection is through direct contact with animals harbouring the organism, but in this country the proportion of the population exposed to this risk must be small, and the drinking of milk containing the organism must be regarded more seriously as a possible mode of infection.

It has long been known that *Br. abortus* localises in the udder of infected cows and may persist for long periods, but apart from the investigation of cow's milk in Manchester carried out in 1926 by Wilson and Nutt, little information has been available as to the proportion of *Br. abortus* in infected market milk in this country. During the past year, however, further light has been thrown on this point by the results obtained from a subsidiary enquiry prosecuted by the Department of Health for Scotland in the course of an investigation into the prevalence of tubercle bacilli in milk.

The author, who, as Special Assistant in the Bacteriology Department of the University of Edinburgh, participated in these enquiries, details the methods employed to test for the presence of *Br. abortus* in the samples of milk received.

The investigation is being continued, and an endeavour will be made to determine what accessory factors are concerned in human infection, but as far as the enquiry has gone it would seem to show:—

(1) That the possibility of infection from retailed raw milk is considerable. In Edinburgh 34·9 per cent. of such milk samples have been found to contain *Br. abortus*. The proportion found is considerably higher than that reported by Wilson and Nutt in Manchester in 1926.

(2) That the test for the presence of *Br. abortus* agglutinins in the sera of guinea-pigs inoculated with milk provides a sufficiently accurate method of estimating the prevalence of *Br. abortus* in milk samples. This method can easily be adopted during the biological examination of milk for tubercle bacilli.

(3) That of 36 strains of *Br. abortus* isolated from milk in Edinburgh all were of bovine type.

(4) That a definite proportion of febrile illnesses which resemble enteric fever is undulant fever. This conclusion is drawn from the examination (*Br. abortus* agglutination) of blood samples sent to the laboratory for the routine Widal examination, such samples coming from patients whose symptoms were those of a continued fever. In Edinburgh out of 24 cases giving rise to the suspicion of enteric fever, four were cases of undulant fever.

[In a later issue of the *Lancet* (No. xxi of Vol. 1, 1932) Dr. F. B. Smith, of the Pathological Laboratory, Royal Infirmary, Preston, gives a record of four cases of undulant fever detected in that area of Lancashire between September, 1930, and April, 1932. Forty-five sera were searched for agglutinins against *Br. abortus* and *melitensis*, four significant results were obtained, and all four cases, when reviewed, conformed with abortus fever. One case was the child of a farmer, in whose herd of cows was infectious abortion: in no other case was there indication of the source of infection.]

W. B.

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[Epidural Anæsthesia in Bovine Obstetrics. Dauvois Vetry. Dr. *Recueil de Médecine Vétérinaire*. Vol. cvii. No. 11.]

Practised first in France 30 years ago on the human subject, sacro-coccygeal or epidural anæsthesia was adopted in Germany and much used in obstetrical cases; and with the publication of some of these the practice returned to France. The anæsthetic introduced into the spinal canal acts on the extradural part of the nerve roots.

The spinal cord finishes at the first sacral vertebra in the horse and at the third in the cow, to be continued as the filum terminale, covered by dura mater and known as the dural cone. The two first pairs of sacral nerves contribute to the formation of the lumbo-sacral plexus serving the posterior limbs, while the last pair, by the internal pudic and the hæmorrhoidal, innervate the external genital organs.

It is necessary to have care not to attain the roots of the first. The effects of this anæsthesia will be different according to the place of introduction, the quantity of solution used, the volume of the sacral canal and the slope of the hind parts of the subject. Practical experience of the method cannot be completely replaced by rules, however precise.

The place of election for the injection is the first intercoccygeal space, which is generally easy to find. Moving the base of the tail and passing the index finger over its superior part, one detects the sacro-coccygeal hiatus; the finger then moving over the flattened spinous apophysis of the first tail vertebra, drops into the depression of the intercoccygeal space. In a fat cow, especially if recumbent, there may be difficulty in fixing the site. Then one can use as guide the vertical plane which passes

through the antero-superior extremity of the ischial tuberosity: it will be found to divide the space sought into two equal parts.

Having disinfected the skin covering the space, a Pravaz needle, two inches long and 1/12-in. diameter, is pushed obliquely from behind forwards through the middle of it for about an inch; a sensation of resistance overcome warns one that the canal is reached. Having mounted the syringe, the solution is injected. This consists of novocain at 2 per cent. and the quantity used ʒiiss to ʒvj. There may be difficulty in keeping the subject in the standing position if the minimum dose is much exceeded or if the injection is made into the sacro-coccygeal space.

Anæsthesia is produced in ten minutes and lasts an hour. Sensibility disappears, the tail becomes slack and expulsive efforts if not abolished are greatly diminished. Many interventions are greatly facilitated by the injection. Its use is indicated in little operations in the vulvo-vaginal region (suture of the vulva, removal of polypi, eversion of the vagina). Removal of retained fœtal membranes is less troublesome, since straining and defæcations are suppressed, as are the expulsive efforts which sometimes persist after calving from retained cleansing or an unknown cause. Eversion of the uterus may be dealt with readily after use of the anæsthetic; if the patient is to be treated in the recumbent position a dove of ʒvj may be given. In calving cases, where straining hinders the efforts of the operator, matters are greatly helped by its use, as they are in forced extraction, where the calf's tail and hocks are presented and in most cases of embryotomy.

The injection has been found to be very useful in torsion of the uterus.

If the Germans exaggerate in saying that obstetric practice has been revolutionised by epidural anæsthesia, it certainly has conferred great benefits on country practitioners and on their patients. From another point of view the simplicity and efficacy of the new method will increase the consideration to which we are entitled from our clients.

W. R. D.

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[Anæsthesia of the Cat by Ethyl Chloride. Dechambre, E. *Recueil de Médecine Vétérinaire.* Vol. cvii. No. 11.]

The technique is simple; it is sufficient to make the patient inspire the drug mixed with as little air as possible. An airtight mask would be suitable were it not for the indocility of the subject, and the author uses a box so constructed that little air surrounds the animal. The cat, being placed in the box, is rapidly anæsthetised by some cubic centimetres of ethyl chloride; the condition lasts some minutes and suffices for castration, tooth extraction, opening of abscesses. If longer sleep is needed it is inadvisable to give large doses of the drug; it is preferable to produce a state of torpor by administering ½ to 1 c.c. somnofene intraperitoneally an hour or two before operating and giving some whiffs of the anæsthetic by mask when the operation (castration, hysterectomy, etc.) is to be performed; anæsthesia may then be kept up at will. The author has had no grave accidents, but advises careful watching of the patient until the return of consciousness is complete.

In case of syncope, traction of the tongue usually suffices to put matters right. Respiratory arrest may be induced by hindrance to expiration; this, too, must be watched for and avoided.

W. R. D.

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[Concerning Hæmoglobinuria. Cocu, J. *Bulletin de L'Académie Vétérinaire.* Vol. 4. No. 9.]

The subject of hæmoglobinuria was discussed at several meetings of the Academy, and considerable controversy arose with regard to the etiology, lesions, etc., of the disease, with the result that, through the medium of M. Cocu, a number of practitioners were invited to give their experience of the occurrence and treatment of the malady. This communication is a summary of their replies.

On one day, November 8th, 1930, M. Mullet, of Linselles, Nord, was called to attend eight horses suffering from the affection. [M. Cocu remarks that his correspondent makes no mention of the colour of the urine and that he shows himself a little "sobre" of details.]

Two first cases were bled and did well. Two others had swollen olecranon muscles: the graver case was bled and both were cured. Shortly after, one of them had a relapse and died. In the fifth case the biceps only were affected. Recovery took place without treatment. Number six was gravely attacked, jaundice being a symptom: this patient was not bled and was killed on the second day. Another, which had only a swelling of the left croup, recovered quickly. Finally, in the eighth case the muscular swellings were multiple—croup, olecranon muscles, biceps and posterior spinatus. The author gives no indication as to how the case ended.

It is to be noted that the day was cold and wet and that the treatment of Weichel (300 c.c. of 1 per cent. solution of potass. permang., given intravenously) was not used. On November 26th M. Mullet had three other cases; the day being cold and dry. In one case the disease evolved rapidly; in the other the aggravation was progressive. Both had to be destroyed, one at the beginning and the other on the fifth day. Both had been bled immediately. The third patient

had swelling of the anterior and posterior spinati muscles; it was bled and was soon well. Weichel's treatment was not used.

On December 26th a mare that had been affected early in the month was again attacked after going about four miles. She was examined two hours afterwards and there was found an enormous swelling of the flat of the thigh, which the owner considered was fractured. She could not be made to move. The mare was bled, rugged up and given a hypodermic injection of pilocarpine. Two hours later she managed to walk to a stable. The improvement was only temporary and, the mare becoming rapidly worse, an intravenous injection of permanganate was given which made no improvement. During the night M. Mullet wished to give another injection, but found the jugular on which he had previously operated completely thrombosed. The mare was destroyed and the thrombosed vein sent to Alfort, where it arrived in such a condition that its examination was useless.

In fifteen years Veterinary Dr. Deloulme, of Héricourt, had only met with isolated cases of hæmoglobinuria. These, treated by therapeutic measures that had given brilliant success to many others, had brought him bitter disillusion. Last winter, instead of isolated cases he was confronted with what he terms a pseudo-epidemic of the malady. In his district the farmers mostly use motor cars for travelling about and the horses spend many of the winter months, often along with cattle, in old insanitary buildings. The early spring days with north winds see the land rapidly dried and difficult to work and the unfit horses, having received little corn in their ration, being easily fatigued, fall victims to hæmoglobinuria; this at least is how Dr. Deloulme explains the occurrence of his seven fatal cases in a fortnight.

Of the patients, six were mares and the seventh a gelding. Bleeding was practised in four cases and in five the animals received intravenous injections of potass. permanganate 1 per cent. Three had pilocarpine subcutaneously and all camphorated oil. The catheter was passed in most of the cases and for the last two a "specific" was tried. In two of the patients swelling and hardness of the masseter muscles was observed forty-eight hours before death—a hitherto unrecorded symptom. Bleeding appeared to be followed by aggravation of the malady. The correspondent asks whether, owing to lesions of the kidney vessels, there is not resorption of urine from the pelvis of the kidney, where it accumulates under pressure. M. Cocu agrees with his correspondent and states that in fatal cases death is mostly due to uræmia. Dr. Deloulme intends to treat the malady in future by bleeding plethoric patients and by the use of gelatined physiologic serum, ergotin, stimulating liniment to the loins, solid diet, abundant drink and. as a preventive, exercise every day at all cost.

Dr. Rossignol, of Melun, states that on December 27th a team of three horses which had been rested for several days was sent to work. A short distance from home the shaft horse began to falter and on being pulled up discharged coffee-coloured urine. A return to the stable was made and on arrival the other two animals were found to be stiff and they too passed dark urine. On examination each horse was found to be affected with swelling and hardness of the olecranon muscles. Treatment consisted of purgation, stimulation of the loins and subcutaneous injection of electrargol. All did well after some days.

Similar cases had been cured by the like treatment.

Veterinary Captain Gudin records the case of an Army mare, doing regular work and getting regulation food, that was attacked while leaving the yard and fell close to the Veterinary Infirmary. Removed to a box and put into slings, the mare was found to have the muscles of the croup and left thigh swollen and tense. Ten ounces of 1 per cent. aqueous solution of permanganate were given intravenously at once. This produced slight shock-excitement, dyspnœa, adynamia—which, however, passed off after a hypodermic injection of atropin was given. The mare had to be taken out of the slings. She was given sodium bicarbonate in the drinking water every two hours. A second permanganate injection was given in the evening and was again followed by slight shock. Apart from some bicarbonate of soda in mash, no other treatment was given and the mare made a good recovery and went to work in a couple of weeks. In this case the urine was at no time discoloured.

It is to be noted that the permanganate was administered immediately after the seizure.

M. Cocu refers to four cases in one stable that were treated by him last summer. Treatment consisted of a little over ʒiij each sod. bic. and lactose daily for two days and the application of liniment ammonia to the swellings, and the four patients recovered. M. Cocu remarks that what he has been able to report may not give a definite solution of the problem placed before the veterinary public, yet the statements are of real interest as they throw light on certain disputed points connected with the malady in question.

It is to be observed that the permanganate solution, to be of use, requires to be used soon after the attack and that its use is not without danger.

In the discussion which followed the reading of the communication M. Leclainche called attention to a recent work on the malady by

Carlstrom, of Stockholm, in which the old views as to its etiology—abundant feeding with carbohydrates and absolute rest for some days—are fully confirmed. By a perfection of methods it is demonstrated that the dissolved hæmoglobin comes not from the blood but from the muscles, and in this manner: during rest glycogen accumulates in the muscle and becomes changed into lactic acid and this at the moment of work cannot escape rapidly and the muscle cell is damaged by it—resulting in coagulation of the myosin.

The muscles particularly affected are those which are in complete rest in the stationary animal—the psoas, for example. It is shown in the book, too, that myoglobinuria may be produced experimentally by feeding the animal copiously on carbohydrates, especially with sugar. In reply, M. Cocu said that he did not believe that the three factors usually adduced accounted for the etiology of the malady—plethora, sharp work after prolonged rest and cold; to these must be added a cause of which we were ignorant.

Some of the patients to which he had referred in his communication were in poor condition and had received but little corn; some had been in continuous work and some of the animals were attacked in warm weather.

M. Leclainche then observed that he offered no opinion on the question; however, he did not think the Academy ought to continue to dispute about the matter without a knowledge of the book to which reference had been made.

W. R. D.

Review

[Review on Investigations on Mediterranean Kala Azar: VI.—Canine Visceral Leishmaniasis. Adler, S., and Theodor, O. (Kala Azar Commission of the Royal Society). *Proc. Royal Soc.* Series B., Vol. 110, No. B 768, pp. 402-412. 20 refs. 2 plates.]

A survey of the literature on Leishmaniasis is first given. Leishmania tropica is now known to be responsible for oriental sore of man and of the dog and L. infantum is believed by most workers to be the cause of both human and canine kala azar. Epidemiologically, the case for identity of the human and canine visceral diseases (kala azar) is not complete as, although canine kala azar exists in most of the Mediterranean foci of infantile kala azar, Catania, which yields the largest number of human cases, has also the lowest recorded number of infected dogs.

In Mesopotamia, oriental sore of dogs is very prevalent, but kala azar does not exist. In the Mediterranean basin there is canine kala azar but not oriental sore. Dermal manifestations (though not actual oriental sore) have been recorded on dogs suffering from visceral leishmaniasis in all foci of canine visceral leishmaniasis and in some cases the sores yielded L.D. bodies. In Turkestan, however, it would appear that not only kala azar with attendant dermal manifestations but also true oriental sore may exist in the same dog.

Adler and Theodor point out that in Turkestan P. sergenti and P. papatasii (carriers of oriental sore) and sandflies of the Major group are common and they state that the fact that these carriers are present accounts for the presence of both kala azar and oriental sore in man and the dog in that country.

Sandflies, P. papatasii in Turkestan and P. perniciosus in Algeria, have been infected by feeding on dogs with kala azar, but the infection in the sandfly was not progressive.

Original observations on one hundred stray dogs in Malta are then recorded. These were examined between June and November and eleven were found to be infected with kala azar. Seborrhœa and depilation were the most frequent signs, being found in nine of eleven cases.

The skin changes were studied in four naturally infected animals. Dense massing of plasma cells and small round cells, which is characteristic of oriental sore of man and the dog, was absent, the skin being normal except for an infiltration of large and small macrophages round hair follicles, including the sebaceous glands. Some of the macrophages contained L.D. bodies, and scattered throughout the normal dermis were rare infected macrophages. These differences clearly distinguish between the dermal manifestations of kala azar and oriental sore due to L. tropica.

Interesting observations are made on the transmission problem. Ctenocephalus canis, Stegomyia fasciata and nymphs of Rhipicephalus sanguineus fed on infected animals were all negative on dissection. On the other hand, sandflies, P. perniciosus, were infected by feeding on the unbroken skin of three dogs naturally infected with kala azar, the infection rate being 62·5 per cent., 65·4 per cent., and 32 per cent. respectively.

The difference in the pathology of canine kala azar and infantile kala azar is that in the latter the visceral infection is more marked and there is little or no infection of the skin. Skin infection may be present in dogs with a slight visceral infection. A very slight skin infection in dogs is sufficient to produce a considerable infection rate in sandflies, but in infantile kala azar, even although the infection of the spleen is heavier, the infection rate of P. perniciosus fed on human cases is much less because the skin infection is absent or negligible.

In the numerous experimental infections in dogs with L. infantum no external skin lesions

have been recorded. Possibly this is because the infections were brought about by either intraperitoneal or intrahepatic inoculations, while, in nature, dogs are infected by the cutaneous route.

With regard to the naturally occurring disease in dogs, there are several outstanding features still unexplained. Towards the end of March and in April, infantile kala azar is prevalent and it is then that many fresh cases of the canine disease appear, yet this is almost two months before the beginning of the sandfly season. P. perniciosus is very rare after the end of October, and the infected dogs have either died or have been cured spontaneously by the end of November, so that if P. perniciosus is responsible for canine kala azar the incubation period would have to be no less than five to six months.

The reviewer would venture to suggest that the necessity of assuming such a lengthy incubation period, of itself casts grave doubts on the legitimacy of accepting the sandfly P. perniciosus as the only means of transmission of the disease. C. MacHattie.

Report

COUNTY OF CUMBERLAND

CHIEF VETERINARY OFFICER'S REPORT FOR THE YEAR 1931

The Report is divided into two sections, the larger section dealing with the Milk and Dairies Acts and the smaller one with the Diseases of Animals Acts.

In carrying out the work of the Milk and Dairies Order of 1926, a close and beneficial co-operation existed between the Sanitary Authorities and the Veterinary Department, and whenever possible the veterinary officer and sanitary inspector carried out a joint inspection. During the year the number of herds inspected was 1,700 and the number of cows examined 20,367. Owing unfortunately to the prolonged illness of the Senior Assistant Veterinary Officer and to the occurrence of foot-and-mouth disease in the Administrative Area, progress in this work had not been as rapid as was anticipated. The Chief Veterinary Officer rightly emphasises the great importance of the educational value of these visits, and states that "the full value of these inspections cannot be judged solely by the number of actually diseased animals dealt with." The bulk of the routine inspections were carried out during the winter months when the cows were housed, but during the summer months notices were sent to the farmers to have their stock available for examination. This system worked well and appeared to cause no unnecessary inconvenience.

Three reports were received under Section 4 of the Milk and Dairies (Consolidation) Act of 1915. One of these reports, from the City of Bradford, is of special interest as the sample was taken from milk that had been pasteurised and was part of a consignment of 391 gallons from a milk depôt receiving 15,000 gallons daily from over 800 farms. Under the circumstances the usual investigation for the detection of the source of infection was not carried out.

Three hundred and fifty-six samples of milk were collected by the police to supplement the dairy herd inspections, and, in addition, 25 samples were taken for biological examination by the Sanitary Authorities, bringing the total number up to 381, an increase of 231 over the previous year. Of the 381 samples, 269 were considered satisfactory, 105 were contaminated and seven were tuberculous.

The Chief Veterinary Officer observes that "The above figures show that a very gratifying improvement has taken place during the last three years in the milk consumed in the county area."

In addition to the above 381 samples, the collection of which was authorised by the County Council, certain Sanitary Authorities collected 92 samples for examination, one of which was tuberculous.

In connection with the Milk (Special Designations) Order, 1923, criticism is directed at the ambiguity of the designations given to the various grades of milk and the resulting confusion concerning them in the mind of the general public. In the county area there are three Certified, seven Grade A (T.T.) and three Grade A herds.

During the year special attention has been paid to the herds supplying milk for consumption by school children, and whenever possible the Health Committee has been recommended to provide milk from Grade A (T.T.) or Grade A herds.

In carrying out the work under the Tuberculosis Order of 1925, 183 bovines were slaughtered, 47 of which suffered from tuberculosis of the udder, 62 from tuberculous emaciation, 73 from chronic cough and definite clinical evidence of tuberculosis and one was found not affected with tuberculosis.

During the year six cases of suspected foot-and-mouth disease were reported, three of which were confirmed.

There were 87 reported cases of suspected anthrax, seven of which were confirmed, being an increase of four cases more than during the previous year.

With reference to sheep scab, the number of cases reported was 24, of which 13 were confirmed. Compared with 1930 there was a decrease in the number of cases reported by

(*Concluded at foot of page* 675.)

N.V.M.A. Divisional Reports

MID-WEST AND SOUTH WALES DIVISION*

MEETING AT BATH

The quarterly meeting of the above Division was held at the "Red House," Bath, on Friday, April 15th, 1932.

Mr. J. R. Hewer occupied the chair, and there were also present Messrs. W. D. Rees, J. C. Coleman, E. C. Bovett, E. E. Seldon, W. A. Austin, J. G. E. Gallie, T. B. Cavan, C. R. Golledge, S. V. Golledge, F. Tonar, R. Moore, J. Howard Jones, G. K. Thomas, L. St. Bel Golledge, A. E. Roberts, T. J. Margarson, H. W. Hall Masheter, W. R. Watson, J. R. Barker, B. H. Gale, J. J. Aveston, C. P. Inglis, D. E. Davis, W. R. Watson, Cecil Adams, Mrs. M. Oyler, Messrs. E. Perry, W. A. Jelbart, Major Hamilton Kirk and C. E. Perry (Hon. Secretary).

The mintues, having been published in the *Record*, were taken as read, and confirmed, on the proposal of Mr. J. W. Hall Masheter, seconded by Mr. J. Howard Jones.

Apologies for non-attendance were received from Professor Share-Jones, Dr. Colston Williams (the M.O.H. of Glamorgan), Professor Hobday, and from Major G. E. Henson (Hon. Treasurer), who was absent on account of a broken leg, arising out of an accident while engaged in the performance of his professional duties.

It was proposed, on the motion of Mr. J. W. Hall Masheter, seconded by Mr. W. R. Watson, that a letter of sympathy and good wishes for speedy recovery be sent to the Hon. Treasurer. This, on being put to the meeting, was carried unanimously.

New Members.—The Secretary proposed the names of three gentlemen desiring to become members of the Division, as follows:—Captain Fox, Ministry Inspector, Bristol; Mr. Eardley, Gloucester; Captain T. J. E. Gallie, Bristol.

*Received for publication May 4th.

These were seconded by Mr. Watson, and the elections were unanimously made.

Rule Amendment.—On the proposition of Mr. T. J. Margarson, seconded by Mr. Moore, the Society's Rule No. 20 was amended "to include whole-time Ministry Veterinary Officers"; it being explained that this would enable an assistant, and Officers of the Ministry (who are frequently stationed within the area for a short period only) to become members of the Division without payment of entrance fee.

POISONOUS PLANTS MET WITH IN COUNTRY PRACTICE

A very interesting discussion then ensued arising out of the paper given by Mr. C. J. Pugh, M.R.C.V.S., published in full in the *Record* of February 27th, 1932, "Poisonous Plants met with in Country Practice."

Mr. Watson remarked upon his experience of vegetable poisons, such as rhododendron and belladonna, and also reported upon an interesting case in which a smallholder renting a 12-acre field (originally plough ground, but never laid down) during the hot summer of 1912 lost four cows within five weeks, in pairs. The symptoms were generalised inflammation of all body cavities, stomach, intestines and uterus, which on *post-mortem* examination were found to contain a jelly-like effusion. The animals all turned very savage and would attack anybody. The field was a mass of plants, without any real grass. A sample was taken and sent to the Veterinary College, Edinburgh, and Professor Stewart McDougall reported that hop clover was the cause of the poisoning. The fields were subsequently cultivated and laid down, and nothing untoward had since occurred. Members would do well to remember that while hop clover, if mixed with other grasses, was an excellent food, it was rank poison if taken in excess and alone.

Mr. Margarson said he recognised very little poisoning in his district. In cases of yew poisoning, for which Mr. Pugh recommended rumenotomy, he found that if cattle were punctured even with a trocar and canula they did very badly after. In saffron poisoning Mr. Pugh recommended digging up the bulbs, but he had found that as these were often 18 inches deep this entailed a lot of labour. He reported a case where bracken had been cut for litter and 8-10 calves had been lost by the farmer. The symptoms were signs of pain, stiffness, staring eyes, and a literal sweating of blood. *Post-mortem* revealed bracken poisoning, but no explanation was forthcoming as to why the calves were suddenly poisoned, as they had had similar litter for months.

Captain Austin reported a case which occurred two years ago in which three animals were involved, two very mildly. The chief symptoms were dysentery—very acute diarrhœa with large

owners and an increase in the number detected by veterinary inspection. Our friends across the Border will be pleased to note that the Chief Veterinary Officer observes that "The outstanding feature in regard to this disease is the progressive decline in the number of outbreaks attributable to Scotch sheep. Whereas in the period 1921-24 the percentage of outbreaks in the county attributable to Scotch sheep was 79 per cent., it has declined in the period 1928-31 to nil."

The Report contains a number of interesting tables showing the results of the work done during the year.

quantities of blood—and high temperature. The two milder cases soon recovered, but the third lasted over a week and eventually made a good recovery. The cause of the poisoning could not be discovered.

Mr. Bovett mentioned a case of poisoning by water hemlock where eleven cattle died through eating the roots of this plant, which had been left in a ditch during a spell of dry weather. In cases of colchicum poisoning he thought the difficulty was the delayed symptoms, and as to this he expressed the belief that deaths occurred as long as four months afterwards. The question of an animal which had symptoms of yew poisoning, but which was slaughtered in the usual way, was mentioned—where the Local Authority rejected the flesh for human consumption. He admitted that the M.O.H. was in order in condemning the carcass, but would like to know whether any ill effects would have been noted in the persons who ate the meat? He believed not. With regard to cases diagnosed as meningitis, he suggested that some cases might be due to food poisoning as in practically all cases the animals died within three hours. He had several cases recently where the cattle stood up, and then suddenly went down in a fit and died within ten minutes. He also mentioned a dog which was poisoned through partaking of a certain brand of rat poison said to contain strychnine, but the symptoms were not in keeping with poisoning from that drug. The dog recovered.

Mr. Pugh, in replying, thanked the members for the way in which they had received the paper, and for the very interesting discussion it had provoked, and which he felt would prove helpful to all. He thanked Mr. Watson for his remarks in regard to rhododendron and belladonna cases, and the hop clover, which were very interesting, especially the latter, with which he had not previously met. He thought the intense enteritis was due to the concentrated fibre present in the viscera at the time. Adverting to Mr. Margarson's opinions: in all cases where rumenotomy was carried out he had met with success. He had used the stomach pump in a few cases, but not with marked success, and had found that if the treatment advocated in the paper was carried out, fairly good results would be obtained, if adopted with no loss of time. Saffron poisoning was very common in his district, and in nine cases treated eight were successful with the treatment recommended. He advised the fields being frequently harrowed to get rid of the bulbs, using the spade for any remaining. Bracken poisoning was a rather vague subject, and many were of the opinion that it was caused by the young shoots. It was usually a seasonal trouble in a dry season due to the scarcity of grass. Demulcent treatment usually gave good results if the practitioner was called in early enough. In colchicum poisoning the delayed symptoms hampered prognosis, but in any case he urged that treatment should be proceeded with without loss of time. He agreed with Mr. Bovett that the Authorities were right in not allowing the carcass of the animal suffering from yew poisoning to be used for human consumption, as he was of the opinion that the flesh was unfit. As to yew poisoning and the reported cases of animals eating yew not being affected while in others the animals died, he was rather of opinion that the male yew was more dangerous than the female, and the difference between the cases could be attributed to the animals partaking of the two sexes of the plant respectively. In his view coffee was better than caffein because it was more readily procurable, easily made with milk, and more to be desired on account of its greater bulk. He repeated that the large dose of chlorodyne was necessary in order to have the desired effect: a smaller quantity would be insufficient. Regarding corn cockle poisoning in sharps, this ought to be detected because of the musty smell, and he considered precautions should be taken to examine samples of this food as a precautionary measure.

Mr. A. E. Roberts said it was his opinion, from his own experience, that bracken poisoning was to be traced in any kind of bracken, whether green and growing or dry and dead. He did not think it was only in cases of green bracken where poisoning occurred; he had met with it in dry.

The Chairman thanked Mr. Pugh for his paper and for the discussion which had ensued, and said everyone would appreciate the time and trouble he had taken in preparing his contribution, and in replying to the questions which had been asked. A hearty vote of thanks was accorded to Mr. Pugh, to which he suitably responded.

MORBID SPECIMENS AND EXHIBITS

The Chairman circulated specimens from a hunter which had broken its back in a point-to-point race. These showed the spinal column broken and full of blood.

A cow that had previously aborted, upon being inoculated with anti-abortion vaccine subsequently aborted at two months, and the fœtus was passed round for inspection.

Mr. C. R. Golledge produced two interesting foreign bodies removed from the tongues of dogs: one a common wire price-ticket skewer, the other the aorta of a sheep. In each case these were right at the back of the tongue. The point of interest was, how did they get back into that position? It would have been almost impossible to get them there by manual force: they were very difficult to remove. Both cases, however, were successful, the animals recovering.

Mr. S. V. Golledge produced a very unusual exhibit in the form of a complete slough from a heifer's bladder.

Paper.—Major Hamilton Kirk, in introducing his paper and demonstration on the subject of electrical aids to veterinary practice, thanked the members for the honour they had done him in asking him to come down for the second time, and said that he appreciated it very much. He hoped they would gain considerably from what he was going to read them, and advised that it would be a good thing for veterinary surgeons seriously to consider what helps they could get from the use of such, or similar, apparatus: not to condemn it without thorough investigation, and to take a real interest in the study of electricity in conjunction with the work of the profession as a whole, and their own special interests or problems in particular.

[Major Kirk's paper is reproduced earlier in this issue.—Ed. *V.R.*]

A short discussion followed, and Major Kirk replied to various queries as to price, length of life of the apparatus, skill in application, fees for treatment, etc., and emphasised the necessity for specialisation. He was sure that if a practitioner specialised in particular branches of the profession his colleagues within a fairly wide radius would be only too ready to avail themselves of his abilities, to their mutual advantage.

A very hearty vote of thanks was proposed to Major Hamilton Kirk by Mr. J. J. Aveston, who said they all appreciated the enormous amount of time and trouble he had given to that very interesting and enlightening paper. They would gain much from it and from the discussion which had followed. He remarked that Major Kirk was also President of the Central Division and as such was doubly welcome—as Presidents of other Divisions were always especially welcome at their gatherings—and asked Major Kirk to convey hearty greetings from the members of the Mid-West and South Wales Division to the Fellows of the Central. This was seconded by Mr. C. R. Golledge in a few well-chosen words and carried with acclamation.

Major Kirk briefly replied and said he would be very pleased to convey their good wishes to the Central Division, and again repeated that it had been a very great pleasure to him to come.

Summer Meeting.—A short discussion ensued regarding the date and venue of the Summer Meeting. It was resolved, on the proposition of Mr. J. W. Hall Masheter, seconded by Mr. J. C. Coleman, that the invitation of the National Institute for Research in Dairying, to pay a visit on Friday, July 1st, be accepted. The details were left in the hands of the Chairman and Secretary, the particulars to be sent round to the members by post, in good time before the visit.

A hearty vote of thanks to the Chairman for presiding brought a most enjoyable and interesting meeting to a close, the members adjourning for tea.

C. E. Perry, *Hon. Secretary.*

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SOUTH AFRICAN V.M.A.*

The 22nd General (Autumn) meeting of this Association was held in the Committee Room of the Witwatersrand Agricultural Society, Show Ground, Pretoria, on March 24th, 1932, at 2.30 p.m. There were present Messrs. Carless (President), Quinlan, Dickson, Chase, McNae, Verney, Snyman, Steyn, Bekker, Martinaglia, E. M. Robinson, M. C. Robinson, Mrs. M. C. Robinson, de Kock, P J. du Toit, Hamlyn, Neitz, Thomas, Fourie, Alexander, Graf, J. S. Watt, Mason, Elder, Kirkpatrick, Monnig, Quin, Parkin, and Curson (Hon. Secretary-Treasurer).

The following visitors were welcomed by the President:—

Dr. J. Legg, of Queensland, and Mr. N. Reid, B.V.Sc., Tanganyika. Dr. Legg was asked to convey the compliments of the S.A.V.M.A. to the members of his Australian Association.

Apologies for absence were received from Messrs. Bush, Dunning, and Chalmers.

The Minutes of meeting April 2nd, 1931 (summary *Jl. S.A.V.M.A.*, May, 1931), were accepted.

Arising from the minutes, the President pointed out (*a*) that Colonel Bush had been elected Vice-President for the year 1931-32; and (*b*) that several extra members (non-official) had been added to the Standing Committees during the year.

The office-bearers for the ensuing year were: *President*: F. J. Carless, *Vice-President*: S. T. Amos; *Hon. Sec.-Treas.*: H. H. Curson; *Members of Council*: Messrs. Alexander, Chalmers, Coles, de Kock, P. J. du Toit, Kirkpatrick, Quinlan, and Thomas.

Mr. Carless expressed regret that Dr. Viljoen was not on the Council. It was agreed that, in the next call for nominations, attention should be directed to the permissibility of double nomination.

A brief summary of the year's activities was given by the President, who stressed the value of the Parliamentary work done by Dr. P. J. du Toit. Dr. du Toit then gave a short account of his work and added that his next move was to attempt to persuade the Minister of Agriculture to adopt the Veterinary Bill as a Government measure. (*Later*: This has been unsuccessful, April 9th, 1932.—H. H. C.).

Since the Reports of the Standing Committees (except Finance) had been circulated, the Report of the Financial Committee was read and adopted. The Sec.-Treasurer was instructed to convey the good wishes of the parent body to the Natal Branch, S.A.V.M.A., formed on February 20th,

* Received for publication May 2nd.

1932. The new Standing Committees were approved.

Constitution: (*a*) *Rule* 1. Add, "where local branches of the S.A. Veterinary Medical Association are formed, no candidate shall be accepted unless he is a member of the S.A.V.M.A." Agreed.

(*b*) *Rule* 9 "(*g*) The following shall be standing committees of Council: (i) Editorial, (ii) Finance, (iii) Parliamentary, (iv) Status, and (v) State Veterinary." Lost by 14 to 9 votes.

(*c*) *Rule* 13. "The financial year shall be April 1st—March 31st next." Agreed.

Regarding (*d*) *Rule* 3 and membership, should the Veterinary Bill become law, it was agreed that this matter would receive the attention of Council when the Bill actually became law. Council to have power to act.

Messrs. J. H. Mason, M.R.C.V.S., of the Empire Marketing Board, and H. M. V. Brown, B.V.Sc., were unanimously elected members of the Association.

Mr. Pullinger's resignation was noted with regret.

Under *Correspondence*, the Hon. Secretary-Treasurer mentioned that (*a*) the South Rhodesia Veterinary Association was now affiliated to the S.A.V.M.A., and that (*b*) the R.A.V. Corps. "Sir Frederick Smith Memorial" Committee had acknowledged with thanks the donation of £5 from the S.A.V.M.A.

Under *General* no definite recommendation was made regarding the gazetting of veterinarians under Act 13: 1928.

The meeting closed at 3.15 p.m., votes of thanks having been registered for the past services of standing committee members, Messrs. C. Jackson (Librarian), Brown (assistant to Secretary-Treasurer), and Steyn (Advertisement manager, *Jl. S.A.V.M.A.*), the President and Hon. Secretary-Treasurer.

H. H. Curson, *Hon. Secretary.*

ARMY VETERINARY SERVICE

London Gazette—War Office—Regular Army Reserve of Officers

May 31st—Major G. T. T. Jackson, having attained the age limit of liability to recall, ceases to belong to the Reserve of Officers. (May 2nd.)

Captain L. R. Swifte, R.A.V.C., is amongst the successful candidates in the Examination (in written subjects) of officers, with a view to promotion in the Regular Army, which was held at Home Stations in March last.

Territorial Army

June 3rd.—Captain R. J. Little resigns his commission (June 4th.)

* * * * *

Azoturia is a myoglobinæmia and a myoglobinuria, and not a hæmaglobinuria, according to Carlström. In other words, the primary source of the hæmoglobin in the urine of azoturia cases has its origin from muscle tissue, not from the blood.—*Bio. Abs.*

In Parliament

The following questions and answers have been recorded in the House of Commons recently:—

CATTLE (EPIZOOTIC ABORTION)

Lord Scone asked the Minister of Agriculture what steps are being taken to eradicate epizootic abortion in cattle?

Sir J. Gilmour: Contagious abortion in cattle has not been made a notifiable disease as it does not lend itself to legislative control. Veterinary research has, however, made available a reliable test by which affected animals can be detected and also an immunising agent suitable for use in heavily infected herds. As I have already announced, the Government is undertaking an investigation into the means of securing a reduction of disease amongst dairy herds, and contagious abortion is one of the diseases included in this inquiry.

. . . . .

ARMY HORSES (SALE)

Major Despencer-Robertson asked the Secretary of State for India whether he will take immediate steps to put an end to the practice of the Indian Government of selling old Army horses to Indians, in view of the fact that Eastern ideas on humanity to animals are different from Western ideas and that unnecessary suffering is thereby caused to these horses?

Sir S. Hoare: I can assure my hon. and gallant Friend that this matter is already receiving sympathetic consideration by the authorities in India. A copy of my hon. Friend's question will be sent to the Government of India.

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MILK CONSUMPTION

Captain Heilgers asked the President of the Board of Education whether, in view of the increased use of milk in elementary schools in the last year, he will take steps to encourage the further consumption of milk in all schools, while at the same time insisting that wherever possible only certified or Grade A milk shall be used?

Sir D. Maclean: I am anxious to see a further extension of the arrangements for the supply of milk to children in public elementary schools, and I am co-operating with the National Milk Publicity Council to that end. In approving arrangements for the provision of milk by local education authorities, the Board call the attention of the authorities to the importance of their satisfying themselves as to the purity and quality of the milk, and they recommend the use of pasteurised or tuberculin tested milk.

Viscountess Astor: Does not the right hon. Gentleman think it would be a better national policy to spend money on milk for children rather than pay a sugar-beet subsidy?

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MUSK RAT DAMAGE, SHROPSHIRE

Major Leighton asked the Minister of Agriculture whether he is aware of the damage being done to river and canal banks by musk rats in Shropshire; and whether he will take steps to employ permanent trained trappers to deal with this pest?

Sir A. Lambert Ward: My right hon. Friend is aware that there are a considerable number of musk rats at large in Shropshire, and is taking the necessary steps, in collaboration with the county agricultural committee of the county council, to bring about their destruction, in which connection the employment of trappers is receiving consideration.

Notes and News

DIARY OF EVENTS

June 13th.—Meeting of Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, 4.30 p.m.

June 13th.—D.V.S.M. Oral Examination begins.

June 16th.—Meeting of the Lincolnshire and District Division, N.V.M.A., at Peterborough.

June 17th.—Meeting of the Southern Counties Division, N.V.M.A., at Southampton.

June 23rd.—Meeting of the Western Counties Division, N.V.M.A., at Plymouth.

June 29th.—R.C.V.S. Committee Meetings begin.

June 30th.—R.C.V.S. Annual Dinner.

July 1st.—R.C.V.S. Council Meetings.

July 1st.—Summer Meeting of the Mid-West and South Wales Division, N.V.M.A., at Shinfield, Reading.

July 6th.—R.C.V.S. Summer Examinations begin.

Aug. 11th.—Royal (Dick) V.C. Alumnus Lunch at Folkestone.

Aug. 8th-13th.—N.V.M.A. Jubilee Congress at Folkestone.

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N.V.M.A. CONGRESS AT FOLKESTONE

Application for Tickets.

To facilitate the collection of information as to the number of tickets required for social and other events in connection with the N.V.M.A. Congress at Folkestone, we are circulating with this issue of the *Record*, as in former years, a ticket application form, to the filling in and despatch of which members are asked to devote their immediate attention. Major T. Dalling, the local secretary, informs us that **July 31st** is the latest date upon which applications for tickets can be entertained, but it is earnestly hoped that applications will be made much earlier and that within the next week or so he will be placed in possession of such information as will enable the Provisional Committee to complete arrangements for the various functions, in connection with some of which a guarantee of a certain number of tickets is required.

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R.C.V.S. ANNUAL DINNER

We would remind our readers that it is desirable to secure tickets for the Annual Dinner well in advance. The date is Thursday, June 30th, and the time 7 for 7.20 at the Hotel Victoria. This is the first time in the history of the profession that the Annual Dinner of the College has been graced by the presence of a member of the Royal Family, and, as members of a Royal College, it behoves as many of us as possible to attend in support of the President and Council. We hear that the Duke of Gloucester has undertaken to propose the toast of the Royal College: this should be an additional reason why we should assure His Royal Highness a good audience.

Tickets, including gratuities, 15s., to be obtained from the Secretary, R.C.V.S., 10, Red Lion Square, London, W.C.1.

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PERSONAL

King's Birthday Honours.—The veterinary profession is represented in the list of honours conferred by the King on the occasion of his sixty-seventh birthday by the Order of the British Empire (Civil Division) award of the C.B.E. to Frank Arthur Verney, Esq., O.B.E., F.R.C.V.S., Principal Veterinary Officer, Basutoland, and to Frederick William Emery, Esq., F.R.C.V.S., Chief Veterinary Officer, Ministry of Agriculture, Northern Ireland.

It is of interest to note that Brigadier George Fleming, D.S.O., the son of the renowned member of our profession of that name) who is in command of the British forces at Shanghai, also receives the C.B.E. (Military Division).

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SLAUGHTER OF ANIMALS

Inquiry into Methods and Equipment

The British Science Guild has appointed a committee of technical experts on slaughter-house methods and equipment. The chairman is Lieut.-Colonel Sir Arnold Wilson, who was chairman of the Industrial Health Research Board in 1920. The vice-chairman is Captain C. W. Hume, honorary secretary of the British Science Guild; and the honorary secretary is Mr. John McMath, a member of the King's College Branch of the University of London Animal Welfare Society.

The committee includes members appointed by the guild on the recommendation of the following bodies:—The Institution of Mechanical Engineers, Mr. John Fearn, of the Birmingham Small Arms Company; the Society of Medical Officers of Health, Dr. Charles Porter, M.O.H., St. Marylebone; the Model Abattoir Society, Sir James Douglas and Mr. R. Stephen Ayling; the Royal College of Veterinary Surgeons, Professor F. T. G. Hobday, principal of the Royal Veterinary College, London, and Lieut.-Colonel T. Dunlop Young, Veterinary Officer and Chief Meat Inspector, Central Markets, Smithfield; the Royal Sanitary Institute, Mr. J. R. Hayhurst, superintendent, Metropolitan Cattle Market, Islington; the Royal Society for the Prevention of Cruelty to Animals, Lieut.-Colonel T. C. R. Moore, M.P., and Mr. R. O. P. Paddison. In addition, the Medical Research Council has been invited to recommend a member.

The terms of reference of the committee are as follows:—"To verify and tabulate information relating to methods of, and equipment for, the slaughtering of animals for food, with especial reference to sanitary, dietetic, and humane requirements; to investigate new methods and equipment; to convey information on the subject to local authorities and other bodies and persons."

BOVINE TUBERCULOSIS ERADICATION

Commenting upon the National Veterinary Medical Association's scheme for the eradication of tuberculosis from cattle herds, Mr. James Mackintosh, who is an acknowledged authority on the subject of milk production, says in a recent number of the *Journal of the Royal Agricultural Society of England*, that it is a welcome sign to stock owners and others interested in this subject that a representative association of the veterinary profession should have made this effort to specify how the eradication of tuberculosis might be proceeded with in this country, and that the scheme merits careful consideration in order that its good points may be commended and its weak points strengthened. As to future action, Mr. Mackintosh suggests that measures of a more constructive and systematic order must be undertaken in the near future if Great Britain is to maintain its reputation as "the world's stud farm"; and an amendment or the amplification of the Tuberculosis Order to attain greater efficiency in the detection and disposal of "open" cases of tuberculosis appears to be one of the first requirements. As this Order is administered by local authorities, it appears desirable that these authorities should carry out routine inspections of herds, and that the staff appointed for this work should also be available to advise farmers on general health measures, such as economical improvements in housing, methods of separation, disinfection and precautions to avoid reinfection. Any effective scheme must cost money, and Mr. Mackintosh realises that for some time the available funds are not likely to be large. He thinks that such measures as might be deemed necessary and desirable should be introduced and carried out generally and effectively by joint action on the part of the State, local authorities and the farmers.

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Visits to Jealott's Hill.—All persons interested in agriculture are invited to inspect the experiments now in progress at the Agricultural Research Station of Imperial Chemical Industries, Ltd., Jealott's Hill, Bracknell, near Maidenhead, Berks, the programme of which includes the comparison of four alternative systems of feeding a dairy herd both in and out of doors. Visitors will be the guests of the Station at lunch or tea. It is desirable that two or three days' notice of an intended visit should be given to the Secretary at the above address.

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Detection of S. pullorum *carrier hens.*—In the abstract published by us (May 21st, 1932, p. 591) of the Report of the First European Conference of Experts on Poultry Diseases, it was stated, in connection with work done on the detection of *S. pullorum* carrier hens, that: "In both the serum slow and fresh blood rapid agglutination methods good results were obtained. The slow method showed agreement with *post-mortem* findings in 95 per cent. of cases, while with the rapid method agreement was reached in 96·6 per cent. of cases."

A correspondent points out that an error has been made here, and adds: "The conclusion arrived at was that the *slow* method showed agreement with *post-mortem* findings in a higher percentage of cases than the *rapid* method."

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Erratum.—We regret that, through a printer's error, Mr. Alex. Thomson, in signing his letter on "Warranty of Cows' Udders" in our last issue, was erroneously made to describe himself as Hon. Secretary of the West of England Division, N.V.M.A. Not only is there no Division so named, but Mr. Thomson is, of course, Hon. Secretary of the West of Scotland Division.

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GROWTH OF "MILK CLUBS"

Milk producers have found an entirely new market in schools, where nearly 1,000,000 children are now members of milk clubs. For a penny a day they are able to purchase a small bottle of milk, hygienically sealed and provided with a straw. The movement has spread to the industrial field and milk services have been established in ironworks, mines, factories, mills, and offices in Carlisle, London, Leeds, Leicester, and Nottingham.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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DENTAL ANÆSTHESIA IN THE DOG

To the Editor of the Veterinary Record.

Sir,—I read Mr. Tutt's letter in last week's *Record* with appreciation, and regret I did not make it very clear in my paper that I was dealing solely with regional anæsthesia (nerve block). For this purpose there is no great necessity for the use of a dental syringe for injections into the infraorbital canal or around the mandibular foramen. The latter is to be recommended in preference to mental foramen injections where a dental syringe is strongly indicated.

I think that the purely local sub-mucous infiltration anæsthesia described by Mr. Tutt can be dispensed with in favour of the more easily performed nerve block method—probably for every tooth in the head. In any case I fail to see how one can truly anæsthetise the root of a tooth by injections on the surface of the bone forming its alveolus, though the region of the neck can be numbed by this means.

Yours faithfully,

J. T. Edwards.

Addlestone.

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R.C.V.S. COUNCIL ELECTION

To the Editor of the Veterinary Record.

Sir,—Having been elected a member of Council R.C.V.S., may I have an opportunity, through the medium of your columns, of expressing my sincere thanks to those Fellows and Members of the profession who kindly voted for me.

It will be my earnest endeavour to maintain that confidence which the electorate has reposed in me.

Yours faithfuly,

Hamilton Kirk.

June 6th, 1932.

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To the Editor of the Veterinary Record.

Sir,—May I avail myself of the columns of the *Record* to convey an expression of my thanks to the members of the profession who recorded their votes in favour of my re-election as Member of Council of the R.C.V.S. I shall continue to render what service I can to that body.

Yours faithfully,

A. Leslie Sheather.

N.V.M.A. Congress at Folkestone, August 8th-13th, 1932

OFFICIAL PROGRAMME

The following is the Official Programme of the Association's Congress, to be held at Folkestone from August 8th to August 13th:—

MONDAY, 8TH, *9.30 a.m.*—Opening of Exhibition of Surgical Instruments, Drugs, etc., by the President. (Woodward Hall.)
MONDAY, 8TH, *10 a.m.*—Opening of the Congress by His Worship the Mayor of Folkestone. (Town Hall).
MONDAY, 8TH, *11 a.m.*—Paper: "Recent Advances in Therapeutics."
MONDAY, 8TH, *Evening.*—Reception by President.
TUESDAY, 9TH, *9.30 a.m.*—Paper: "The Relation of Meat and Meat Products to Bacterial Food Poisoning in Man."
TUESDAY, 9TH, *11.30 a.m.*—Paper: "Anærobic Infections of Sheep as seen in the Romney Marsh."
TUESDAY, 9TH, *2.30 p.m.*—Tuberculin Testing at Longport Farm, Cheriton, Near Folkestone.
TUESDAY, 9TH, *8 p.m.*—Popular Lecture: "What the Veterinary Profession is doing for your Animals," by Major-General Sir John Moore, K.C.M.G., C.B., F.R.C.V.S. (Town Hall). Chair to be taken by His Worship the Mayor of Folkestone.
WEDNESDAY, 10TH, *9.30 a.m.*—Paper: "A Comparison of the Systems of Meat and Milk Inspection in this Country and Abroad.
WEDNESDAY, 10TH, *10.30 a.m.*—Excursion to Canterbury—Visit to Cathedral. Arrive back 4.30 p.m. (This has been arranged mainly for ladies).
WEDNESDAY, 10TH, *11.30 a.m.*—Paper: "The Diagnosis of Gastric and Intestinal Diseases of the Dog and Cat."
WEDNESDAY, 10TH, *2.30 p.m.*—Council Meeting, Town Hall.
WEDNESDAY, 10TH, *3.30 p.m.*—Annual General Meeting, Town Hall.
WEDNESDAY, 10TH, *7.30 p.m.*—Annual Banquet, Royal Pavilion Hotel.
THURSDAY, 11TH, *10.0 a.m.*—Official Photograph—Royal Pavilion Hotel.
THURSDAY, 11TH, *10.30 a.m.*—Demonstrations, etc. (*a*) Surgical—Professor W. M. Mitchell, M.B., CH.B., B.SC., M.R.C.V.S., Professor J. McCunn, M.R.C.S., L.R.C.P., M.R.C.V.S., and Captain F. C. Gillard, M.R.C.V.S.; (*b*) Pathological; (*c*) X-ray.
THURSDAY, 11TH, *11 a.m.*—First Annual General Meeting of Ladies' Veterinary Benevolent Guild.
THURSDAY, 11TH, *2.30 p.m.*—Tuberculin Testing, Longport Farm, Cheriton.
THURSDAY, 11TH, *9.0 p.m.*—Dance at the Grand Hotel in aid of Victoria Veterinary Benevolent Fund.
FRIDAY, 12TH, *9.30 a.m.*—Paper: "Clinical Examination of the Cow's Udder."
FRIDAY, 12TH, *11.30 a.m.*—Paper: "Contagious Abortion: (*a*) vaccination; (*b*) its relation to Undulant Fever."
FRIDAY, 12TH, *2.30 p.m.*—Tuberculin Testing, Longport Farm, Cheriton.
SATURDAY, 13TH, *9.30 a.m.*—Closing Meeting, Town Hall.

SUBJECTS FOR PAPERS

PUBLIC HEALTH SECTION

(*President*: *Arthur Gofton, Esq.*, F.R.C.V.S.)
(*Vice-President*: *Major Brennan De Vine*, M.C., F.R.C.V.S., D.V.S.M.)
(*Recording Secretary*: *P. F. Dolan, Esq.*, M.R.C.V.S., D.V.S.M.)

1.—"The Relation of Meat and Meat Products to Bacterial Food Poisoning in Man.
By R. Lovell, M.SC., M.R.C.V.S., D.V.S.M., London.
Opener: Professor J. F. Craig, M.A., M.R.C.V.S., Dublin.
2.—"A Comparison of the Systems of Meat and Milk Inspection in this Country and Abroad."
By Major D. S. Rabagliati, B.SC., F.R.C.V.S., D.V.S.M., Wakefield, and Lieut.-Colonel T. Dunlop Young, M.R.C.V.S., D.V.S.M., London.
Opener: Lieut.-Colonel J. A. Dixon, T.D., M.R.C.V.S., Leeds.

VETERINARY MEDICINE AND SURGERY SECTION

(*President*: *Professor James Macqueen*, F.R.C.V.S.)
(*Vice-President*: *Professor Geo. H. Wooldridge*, F.R.C.V.S., M.R.I.A.)
(*Recording Secretary*: *Captain O. V. Gunning* D.V.M., M.R.C.V.S.)

1.—"Recent Advances in Therapeutics."
By Arnold Spicer, F.R.C.V.S., Oxted.
Opener: Dr. J. Russell Greig, M.R.C.V.S., Edinburgh.
2.—"The Diagnosis of Gastric and Intestinal Diseases of the Dog and Cat."
By Professor J. G. Wright, F.R.C.V.S., London.
Openers: Major Frank Chambers, F.R.C.V.S., Wolverhampton; Major Hamilton Kirk, M.R.C.V.S., London.
3.—"Clinical Examination of the Cow's Udder."
By Captain R. Simpson, F.R.C.V.S., D.V.S.M., Carlisle.
Opener: Thomas Wilson, M.R.C.V.S., Nantwich.

EXPERIMENTAL PATHOLOGY SECTION

(*President*: *Professor J. Basil Buxton*, M.A., F.R.C.V.S., D.V.H.)

(*Vice-President*: *Professor S. H. Gaiger*, F.R.C.V.S.)

(*Recording Secretary*: *Dr. W. R. Wooldridge*, M.SC., M.R.C.V.S.)

1.—" Anærobic Infections of Sheep as seen in the Romney Marsh."
By A. D. McEwen, B.SC., M.R.C.V.S., Wye.
Opener: Dr. R. F. Montgomerie, B.SC., F.R.C.V.S., Bangor.

2.—" Contagious Abortion: (*a*) vaccination; (*b*) its relation to Undulant Fever."
By Dr. W. H. Andrews, M.R.C.V.S., Weybridge.
Openers: Dr. F. C. Minett, M.R.C.V.S., London; Professor G. S. Wilson, London.

LIST OF HOTELS.

UPPER TOWN:

Adelphi, 2, *Augusta Gardens, near the Leas*, £4 4s. to £5 5s. per week, or 12s. 6d. to 15s. 6d. per day.
Avondale, 19, *Clifton Gardens*, £3 13s. 6d. to £5 5s. per week, or 10s. 6d. to 14s. 6d. per day.
Bannockburn, 27, *Castle Hill Avenue*, from 2½ guineas weekly.
Bath Hotel, *The Leas*, from 3 guineas weekly.
Belvedere, 12, *Trinity Crescent, en pension*, £4 4s. per week, or 14s. 6d. per day.
Blount's (Private), 28, *Clifton Gardens*, from £4 4s. per week.
Bouverie House, 25-26, *Bouverie Square, en pension*, 3-3½ guineas per week.
Bristol, 2-3, *The Leas*, from £4 4s. per week, or from 12s. 6d. per day.
Burlington, *The Leas*, from 7 guineas weekly
Cambridge (Private), 24, *Clifton Gardens*, from £4 4s. per week.
Casbon House, 14, *Castle Hill Avenue*, from £3 3s. weekly.
Clifton, *The Leas*, £5 15s. 6d. to £10 10s. per week, or 16s. 6d. to 30s. per day.
Comans, *Castle Hill Avenue*, from £4 4s. to £6 6s. per week, or from 13s. 6d. per day.
Carlton (Private), 18-19, *The Leas, en pension*, from 10s. 6d. to 19s. 6d. per day.
Flordon House (Private), 10, *West Terrace, en pension*, from £3 13s. 6d. per week.
Garden House, 142, *Sandgate Road, near the Leas*, from £5 15s. 6d. per week or from 16s. 6d. to 25s. per day.
Glendower (Private), 29, *Clifton Gardens*, £3 13s. 6d. to £4 14s. 6d. per week.
Grand, *West Leas* (licensed), from 25s. per day.
Gresham (Private), 18, *Clifton Crescent*, £3 3s. to £5 5s. per week.
Highcliffe (Private), 22-23, *Clifton Gardens*, from £3 3s. per week, or 10s. per day.
Holderness (Private), *Clifton Crescent*, from £3 3s. per week or 10s. 6d. per day.
Hurlingham, 18, *Clifton Gardens*, £3 3s. to £5 5s. per week.
Kildare (Private), 17, *Clifton Gardens*, £3 3s. to £5 5s. per week, or from 10s. 6d. per day.
Langhorne, *The Leas, en pension*, from £4 4s. per week.
Lincoln (Private), 20-24, *Bouverie Square, en pension*, from £3 3s. per week.
Leas (licensed), *Clifton Gardens, The Leas*, 5½ to 7½ guineas per week.
The Longford (Private), 7, *The Leas*, 4 to 5 guineas per week.
Lyndhurst, *Clifton Gardens, The Leas*, from £7 7s. per week.
Majestic (licensed), *Castle Hill Avenue*, from 17s. 6d. per day for not less than 5 days.
May-Fair (Private), 9-10, *The Leas*, from £3 13s. 6d. per week, *en pension*.
Montclair (Private), 21, *Clifton Gardens*, from £3 3s. per week.
Moore's, *The Leas*, from £3 13s. 6d. per week.
Norfolk (licensed), 10-12, *Langhorne Gardens*, 5 and 5½ guineas per week.
Queen's (licensed), *Sandgate Road*, from 15s. per day for not less than 3 days.
Rhodesia, *The Leas*, from 2½ guineas weekly.
Salisbury (Private), *Langhorne Gardens, The Leas*, £5 5s. to £7 7s. per week, or from 15s. per day.
Skelmersdale, 22-24, *The Leas*, 4 to 6 guineas per week.
St. Genny's (Private), 26, *Clifton Gardens*, from £3 13s. 6d. per week.
Torrington (Private), 14, *Bouverie Square*, from £3 3s. per week.
Trevarra (Private), 30, *Bouverie Road West, en pension*, from £3 3s. per week.
Wampach (licensed), 31-37, *Castle Hill Avenue*, from 17s. 6d. per day.
White House (Private), 5, *Clifton Gardens*, from £3 13s. 6d. per week.
Windsor House, *Langhorn Gardens*, from 3½ guineas.

Board-Residence:

" Twyford," 4, *West Terrace, The Leas*, 3-5 guineas weekly.
York House, 6, *West Terrace, The Leas*, from £3 3s. weekly.

LOWER SEA-FRONT:

Beach House, 10, *Marine Parade*, from £3 3s. per week.
Devonshire House, 8-9, *Marine Parade*, from £3 13s. 6d. per week.
Pier, 1-2, *Marine Crescent*, from 2½ guineas weekly.
Royal Pavilion (licensed), £6 6s. to £8 8s. per week, or from 18s. per day.
Victoria (Private), 13-14, *Marine Crescent*, from £3 3s. weekly.

Board-Residence:

Barrelle House, 14-15, *Marine Parade*, from 2½ guineas weekly.
Chatsworth, 4-5, *Marine Crescent*, from 6s. per day.
Crescent House, 11, *Marine Crescent*, from £3 3s. weekly.
Stoneleigh, 12, *Marine Crescent*, from 3 to 3½ guineas weekly.

Sandgate.

Royal Kent (licensed), from £6 6s. per week.

Hythe

Imperial, from 8 guineas weekly.
Sutherland House (licensed) from 3½ guineas per week.

As Folkestone is an extremely popular South Coast holiday resort, application for rooms should be made forthwith to ensure accommodation.

All the hotels mentioned above will gladly send further particulars upon request.